

# Exhibit N

<p style="text-align: right;">Page 1</p> <p>1 IN THE UNITED STATES DISTRICT COURT 2 FOR THE NORTHERN DISTRICT OF ALABAMA 3 SOUTHERN DIVISION 4 5 6 7 CIVIL ACTION NO.: 2:16-cv01443-AKK 8 9 BLACK WARRIOR RIVERKEEPER, INC., 10 Plaintiff, 11 12 v. 13 14 DRUMMOND COMPANY, 15 Defendant. 16 17 18 DEPOSITION TESTIMONY OF: 19 GORDON JOHNSON, M.Sc., P.Eng. 20 June 21, 2018 21 22 23</p>	<p style="text-align: right;">Page 3</p> <p>1 to any questions except as to form or 2 leading questions and that counsel for 3 the parties may make objections and 4 assign grounds at the time of trial or at 5 the time said deposition is offered in 6 evidence, or prior thereto. 7 In accordance with the Federal 8 Rules of Civil Procedure, I, Lane C. 9 Butler, am hereby delivering to Richard 10 E. Davis, Esq., the original transcript 11 of the oral testimony taken the 21st day 12 of June, 2018. 13 Please be advised that this is 14 the same and not retained by the Court 15 Reporter, nor filed with the Court. 16 17 18 19 20 21 22 23</p>
<p style="text-align: right;">Page 2</p> <p>1 S T I P U L A T I O N S 2 IT IS STIPULATED AND AGREED 3 by and between the parties through their 4 respective counsel that the deposition of 5 GORDON JOHNSON may be taken before Lane 6 C. Butler, a Court Reporter and Notary 7 Public for the State at Large, at the law 8 offices of Starnes Davis Florie, 100 9 Brookwood Place, Seventh Floor, 10 Birmingham, Alabama, on the 21st day of 11 June, 2018, commencing at approximately 12 9:00 a.m. 13 IT IS FURTHER STIPULATED 14 AND AGREED that the signature to and the 15 reading of the deposition by the witness 16 is waived, the deposition to have the 17 same force and effect as if full 18 compliance had been had with all laws and 19 rules of Court relating to the taking of 20 the depositions. 21 IT IS FURTHER STIPULATED 22 AND AGREED that it shall not be necessary 23 for any objections to be made by counsel</p>	<p style="text-align: right;">Page 4</p> <p>1 A P P E A R A N C E S 2 3 FOR THE PLAINTIFF: 4 5 Barry A. Brock, Esq. 6 Christina Andreen, Esq. 7 SOUTHERN ENVIRONMENTAL LAW CENTER 8 2829 Second Avenue South, Suite 282 9 Birmingham, Alabama 35233 10 bbrock@selcal.org 11 candreen@selcal.org 12 13 Eva L. Dillard, Esq. 14 BLACK WARRIOR RIVERKEEPER, INC. 15 710 37th Street South 16 Birmingham, Alabama 35222 17 edillard@blackwarriorriver.org 18 19 20 21 22 23</p>

<p style="text-align: right;">Page 5</p> <p>1 FOR THE DEFENDANT: 2 3 Richard E. Davis, Esq. 4 STARNES DAVIS FLORIE 5 100 Brookwood Place, Seventh Floor 6 Birmingham, Alabama 35209 7 red@starneslaw.com 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23</p>	<p style="text-align: right;">Page 7</p> <p>1 I, Lane C. Butler, a Court 2 Reporter and Notary Public, State of 3 Alabama at Large, acting as Notary, 4 certify that on this date, pursuant to 5 the Federal Rules of Civil Procedure and 6 the foregoing stipulation of counsel, 7 there came before me at the law offices 8 of Starnes Davis Florie, 100 Brookwood 9 Place, Seventh Floor, Birmingham, 10 Alabama, commencing at approximately 9:00 11 a.m., on the 21st day of June, 2018, 12 GORDON JOHNSON, M.Sc., P.Eng., witness in 13 the above cause, for oral examination, 14 whereupon the following proceedings were 15 had: 16 17 GORDON JOHNSON, M.Sc., P.Eng., 18 being first duly sworn, 19 was examined and testified as follows: 20 21 THE COURT REPORTER: Thank you. 22 Usual stipulations? 23 MR. BROCK: Sure. Yeah, we'll</p>
<p style="text-align: right;">Page 6</p> <p>1 INDEX 2 3 EXAMINATION BY: PAGE NO. 4 Mr. Davis 8 5 6 7 8 9 EXHIBITS 10 11 FOR THE DEFENDANT: 12 1 - Deposition notice 12 13 2 - Curriculum vitae 15 14 3 - Expert report, October 2017 53 15 4 - Memorandum, 11/8/17 181 16 5 - Rebuttal report, April 2018 191 17 18 19 20 21 22 23</p>	<p style="text-align: right;">Page 8</p> <p>1 read and sign. 2 3 EXAMINATION BY MR. DAVIS: 4 Q. Okay. Good morning, Mr. 5 Johnson. 6 A. Good morning. 7 Q. We've previously met. I'm 8 Richard Davis, and as you know, I 9 represent the Drummond Company in the 10 case here that's brought by Black Warrior 11 Riverkeeper. 12 Have you previously given any 13 depositions? 14 A. No. 15 Q. Never? 16 A. No. 17 Q. Okay. 18 A. I've been involved in 19 administrative hearings and in court 20 cases. 21 Q. Okay. 22 A. But those never included 23 depositions. Simply testifying and</p>

<p style="text-align: right;">Page 9</p> <p>1 examination.</p> <p>2 Q. All right. So you've given</p> <p>3 testimony at trial?</p> <p>4 A. Correct.</p> <p>5 Q. And you have given testimony at</p> <p>6 administrative hearings?</p> <p>7 A. Correct.</p> <p>8 Q. All right. Did any of those</p> <p>9 trials or hearings have anything to do</p> <p>10 with coal mining?</p> <p>11 A. Yes.</p> <p>12 Q. All right. And can you identify</p> <p>13 which one or more did?</p> <p>14 A. One of the hearings I was</p> <p>15 involved with was for an operation called</p> <p>16 Keephills.</p> <p>17 Q. Okay.</p> <p>18 A. And so it was an expansion of a</p> <p>19 power-generating facility. I was</p> <p>20 retained by a group of homeowners through</p> <p>21 a lawyer who were affected by the</p> <p>22 expansion of the mine.</p> <p>23 Q. Okay.</p>	<p style="text-align: right;">Page 11</p> <p>1 States?</p> <p>2 A. I have not.</p> <p>3 Q. Have you testified in any</p> <p>4 trials, and by that I mean a litigated</p> <p>5 matter such as you're testifying in</p> <p>6 today, in the United States?</p> <p>7 A. I have not.</p> <p>8 Q. Okay. Since you haven't been</p> <p>9 deposed before, this is not really any</p> <p>10 different than any other sworn testimony</p> <p>11 you have given. I will be asking you</p> <p>12 some questions, you will be giving</p> <p>13 answers, the court reporter will be</p> <p>14 taking those answers down. We both need</p> <p>15 to make an effort to speak audibly and</p> <p>16 clearly so she can type down what we're</p> <p>17 saying. And as you may be aware, what</p> <p>18 the result of this will be will be a</p> <p>19 typed transcript where the questions will</p> <p>20 be preceded by the letter "Q," the</p> <p>21 answers will be preceded by the letter</p> <p>22 "A," and as we mark exhibits like we've</p> <p>23 just done, those will be appended to the</p>
<p style="text-align: right;">Page 10</p> <p>1 A. And they had concerns about the</p> <p>2 manner with which bottom ash and fly ash</p> <p>3 was being managed.</p> <p>4 Q. Okay.</p> <p>5 A. So that was the -- that was the</p> <p>6 focus of my involvement.</p> <p>7 Q. All right. And were you</p> <p>8 retained as an expert witness in that</p> <p>9 case?</p> <p>10 A. Correct, yes.</p> <p>11 Q. Okay. Was it a trial or an</p> <p>12 administrative hearing?</p> <p>13 A. It was a hearing. It's a</p> <p>14 regulatory process for large projects</p> <p>15 that go to public hearing under the</p> <p>16 environmental acts in Alberta. So that</p> <p>17 was the grounding of the involvement.</p> <p>18 Q. All right. You anticipated my</p> <p>19 next question, which was, was that in</p> <p>20 Canada or the USA, and it was in Canada?</p> <p>21 A. Canada.</p> <p>22 Q. Okay. Have you testified in any</p> <p>23 administrative proceedings in the United</p>	<p style="text-align: right;">Page 12</p> <p>1 deposition. Okay.</p> <p>2 If at any point you want to take</p> <p>3 a break for any reason, just let me know,</p> <p>4 and I'll be happy to accommodate you.</p> <p>5 It's supposed to be an</p> <p>6 information-gathering endeavor. It is</p> <p>7 not intended to be punitive or anything</p> <p>8 else like that, so I want you to be</p> <p>9 comfortable throughout the process.</p> <p>10 Okay?</p> <p>11 All right. What you have in</p> <p>12 front of you has been marked Exhibit 1 to</p> <p>13 your deposition. Have you seen that</p> <p>14 document before?</p> <p>15 (Defendant's Exhibit 1 was marked for</p> <p>16 identification and is attached.)</p> <p>17 A. Yes. I believe it was -- I got</p> <p>18 an e-mail, a PDF of this.</p> <p>19 Q. Okay. And this is simply the</p> <p>20 document, a type of document the parties</p> <p>21 exchange to set depositions. And they're</p> <p>22 also allowed by the rules, as we did</p> <p>23 here, to append a document request to it,</p>

<p style="text-align: right;">Page 13</p> <p>1 have thoroughness to make sure all 2 documents that are pertinent have been 3 produced. 4 Will you take a look at Exhibit 5 A and let me know if you've seen that 6 before. 7 (Witness reviews document.) 8 A. Yes, I have. 9 Q. Okay. And was that something 10 you discussed with counsel for 11 Riverkeeper as well? 12 A. Yes. 13 Q. You see the categories of 14 documents that are requested. We 15 requested at number 2 books, treatises, 16 and that kind of thing, but by discussion 17 between the lawyers, you know, between me 18 and Mr. Brock, we're not asking people 19 unless it's convenient for them to 20 produce the actual document or book so 21 long as it's been identified as a 22 reference somewhere in the report. 23 So with that caveat, are there</p>	<p style="text-align: right;">Page 15</p> <p>1 Q. Okay. 2 A. You know, through the Web. 3 Q. Sure. 4 A. If they weren't otherwise 5 provided to the lawyers. So there are 6 one or two documents that are simply 7 available electronically on the Web. 8 Q. Right. And you have references 9 where those can be obtained? 10 A. That's right. 11 Q. Okay. Thank you. 12 All right. Will you identify 13 what we've marked as Exhibit 2? 14 (Defendant's Exhibit 2 was marked for 15 identification and is attached.) 16 A. Yes. My resumé. 17 Q. Okay. Now, this one is dated 18 2017. And I -- we received this from 19 counsel for Riverkeeper. Have there been 20 any substantive changes in your vitae 21 since 2017? And by that, by 22 "substantive," I mean have you obtained 23 any new degrees, any new licenses, have</p>
<p style="text-align: right;">Page 14</p> <p>1 any documents that you have used or 2 referenced in any of your reports that 3 have not been provided to the lawyers and 4 that are not identified in your report? 5 A. I think I understood the 6 question. 7 Q. It was a complicated question, 8 so. 9 A. There's no documents that I've 10 relied upon that aren't otherwise 11 referenced in my report. 12 Q. Okay. All right. And that 13 would include the expert -- the reports 14 of Mr. Brown and others and the 15 references that you've listed at the end 16 of your reports? 17 A. Correct. 18 Q. Okay. All right. Do you have 19 any documents within the scope of Exhibit 20 A that you have not provided to the 21 lawyers? 22 A. The references that I've made 23 are all publicly available, so</p>	<p style="text-align: right;">Page 16</p> <p>1 you done any testimony, any of these 2 major categories at all? 3 A. There's been no substantive 4 change. 5 Q. Okay. All right. And I'm 6 looking at the paragraph that begins your 7 CV. The second sentence where you're 8 relating your mining-related experience: 9 investigations, designs, construction 10 planning, supervision, performance 11 monitoring for tailing impoundments, 12 waste dump, and management of off-spec 13 materials; right? 14 A. Correct. 15 Q. Okay. How many different 16 facilities have you, or mines have you 17 provided those services for? 18 A. Well, I can't give you a precise 19 number, but it would be more than twenty. 20 But on that order. 21 Q. Okay. How many of those are in 22 the United States? 23 A. Less than five</p>

<p style="text-align: right;">Page 17</p> <p>1 Q. How many were in Alabama?</p> <p>2 A. I worked with a company,</p> <p>3 Lafarge, that had two former cement</p> <p>4 manufacturing operations. So that's</p> <p>5 mining of sorts. But not coal mining.</p> <p>6 There was two facilities in Alabama.</p> <p>7 Q. Okay. All right. Now, with</p> <p>8 regard to the part of your answer where</p> <p>9 the answer was more than twenty, you've</p> <p>10 made a good point. Let me rephrase the</p> <p>11 question to be limited to coal mining.</p> <p>12 So, how many coal mining facilities or</p> <p>13 mines have you provided the services</p> <p>14 listed for, total?</p> <p>15 A. I would say approximately ten.</p> <p>16 Q. Okay.</p> <p>17 A. Maybe about half the jobs that</p> <p>18 I've worked on have been coal mines.</p> <p>19 Q. Okay. And how many of those are</p> <p>20 in the USA?</p> <p>21 A. Just one.</p> <p>22 Q. Okay. What one was that?</p> <p>23 A. In Wyoming.</p>	<p style="text-align: right;">Page 19</p> <p>1 right?</p> <p>2 A. Correct.</p> <p>3 Q. And as I understand from your</p> <p>4 CV, that's a sole proprietorship?</p> <p>5 A. Yes.</p> <p>6 Q. Meaning Gordon Johnson is the</p> <p>7 sole proprietor; right?</p> <p>8 A. Yes.</p> <p>9 Q. Okay. Why do you call it</p> <p>10 Burgess Environmental?</p> <p>11 A. Because 1495138 Alberta,</p> <p>12 Limited, didn't sound personal enough,</p> <p>13 which was the incorporated name I was</p> <p>14 given.</p> <p>15 Q. Okay.</p> <p>16 A. So you have -- you can elect to</p> <p>17 give it a name.</p> <p>18 Q. I see.</p> <p>19 A. Burgess is a rock formation in</p> <p>20 Yoho Valley in Banff, and Yoho National</p> <p>21 Park is outside of Calgary, a place I</p> <p>22 like.</p> <p>23 Q. Okay. I understand. All right.</p>
<p style="text-align: right;">Page 18</p> <p>1 Q. Okay. What's the name of the</p> <p>2 mine?</p> <p>3 A. I'm going to say something like</p> <p>4 Caballo, but it was a while ago, so it</p> <p>5 was more than ten years ago, so I don't</p> <p>6 -- Caballo Mine maybe.</p> <p>7 Q. Is that --</p> <p>8 A. The answer to your question is I</p> <p>9 can't remember.</p> <p>10 Q. Okay. Is that project listed</p> <p>11 anywhere on your CV?</p> <p>12 A. It's not.</p> <p>13 Q. All right. And how many coal</p> <p>14 mines in Alabama?</p> <p>15 A. None. Prior to Maxine.</p> <p>16 Q. Okay. On how many days have you</p> <p>17 actually had boots on the ground, your</p> <p>18 boots on the ground at the Maxine Mine</p> <p>19 site?</p> <p>20 A. Two.</p> <p>21 Q. All right. Your present</p> <p>22 position occupationally is that you're</p> <p>23 the president of Burgess Environmental;</p>	<p style="text-align: right;">Page 20</p> <p>1 And under the Canadian system, you are</p> <p>2 assigned a number?</p> <p>3 A. If you don't otherwise provide a</p> <p>4 name.</p> <p>5 Q. If you don't otherwise provide a</p> <p>6 name. Okay. All right. Now, I</p> <p>7 understand that you have some work</p> <p>8 history in common with Anthony Brown?</p> <p>9 A. Correct.</p> <p>10 Q. Right? All right. And were</p> <p>11 there others, such as Wade Major or any</p> <p>12 of the other individuals that you worked</p> <p>13 with such as the geophysical team that</p> <p>14 also share some work history with you?</p> <p>15 A. Yes.</p> <p>16 Q. All right. Can you identify</p> <p>17 those individuals?</p> <p>18 A. Wade.</p> <p>19 Q. Okay.</p> <p>20 A. And Chris Slater, who was on the</p> <p>21 geophysical team.</p> <p>22 Q. Okay.</p> <p>23 A. Those two</p>

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1 Q. All right. And will you  
2 elaborate for us what your common work  
3 history is?  
4 A. So Anthony and I worked together  
5 in a company called Komex that was a  
6 private organization, and we were  
7 partners in the organization. So Anthony  
8 looked after the American part of the  
9 business, and I was one of the people who  
10 looked after the Canadian part of the  
11 business.  
12 Q. Okay.  
13 A. Whilst I was doing that, Wade  
14 was part of the Canadian operation, and  
15 so was Chris.  
16 Q. Okay. All right.  
17 A. And it was an environmental  
18 firm.  
19 Q. Sure.  
20 A. With maybe a focus on  
21 groundwater.  
22 Q. Okay. How long did you work in  
23 the same company with each of those

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1 individuals?  
2 A. This is an estimate.  
3 Q. Certainly.  
4 A. But I would have left the  
5 organization in 2009 and joined in 1995,  
6 so that's the period of time where I  
7 would have overlapped with Anthony.  
8 Q. Okay.  
9 A. With the others, maybe half that  
10 duration. Wade came later. Chris came  
11 later.  
12 Q. Okay. And during the course of  
13 your career with the company during those  
14 overlap periods, did you work on one or  
15 more projects with those individuals?  
16 A. I may have worked with Wade. I  
17 certainly didn't work with Anthony, and I  
18 didn't work with Chris.  
19 Q. Okay. How were you contacted  
20 about being involved in the Maxine Mine  
21 case?  
22 A. Anthony called.  
23 Q. Okay. And what did he tell you?

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1 A. Well, he was asking me about  
2 the -- he was asking me about somebody  
3 else and whether I thought they would be  
4 suitable to do the work.  
5 Q. Okay.  
6 A. So. One thing led to another.  
7 Q. Okay. Who was he asking you  
8 about?  
9 A. A former employee of Komex named  
10 Mike Thompson.  
11 Q. Okay. And how did it come to be  
12 that you are the person who I'm deposing  
13 today?  
14 A. I think, you know, as I recall  
15 the conversation, Anthony was interested  
16 in the reclamation aspects of mine waste  
17 facilities and was asking about Mike. Of  
18 course, Mike worked in Canada, Anthony  
19 worked in the U.S., so they didn't know  
20 each other intimately about what their  
21 skills were. And Mike was a hydrologist,  
22 so. I think they call it a  
23 hydrotechnical engineer now. Calculates

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1 water velocities and speeds and volumes  
2 and things like that.  
3 Q. Okay.  
4 A. So I didn't think it was a  
5 match.  
6 Q. Okay. And you so advised Mr.  
7 Brown, I take it?  
8 A. Yes.  
9 Q. Okay. And did you volunteer  
10 your services, or did he inquire whether  
11 you would be interested?  
12 A. One or the other. Probably both  
13 at the same time.  
14 Q. Okay. Are you currently working  
15 on projects both in the United States and  
16 Canada?  
17 A. Am I currently working on  
18 projects? Yes.  
19 Q. Okay. Can you give me an  
20 estimate, or if you happen to know it, a  
21 precise number, as to what percentage of  
22 the projects on which you are currently  
23 working are in Canada versus being in the



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1 United States?  
2 A. I would say about 50 percent of  
3 my work right now is in Canada, 25  
4 percent in the United States, and 25  
5 percent elsewhere.  
6 Q. Okay. And if you would just  
7 give me some examples generally of what  
8 "elsewhere" would be currently.  
9 A. Currently, I'm working with SNC  
10 in Saudi Arabia with -- doing a  
11 groundwater management project for the  
12 Jeddah airport.  
13 Q. Okay.  
14 A. Which is winding down.  
15 Q. All right. If you will, please,  
16 Mr. Johnson, look at page 2 of your CV.  
17 A. Yes.  
18 Q. Under "Mining and Mine-Related"  
19 experience. First item you've listed is  
20 "Environmental assessment and restoration  
21 plan for the Maxine Mine waste rock  
22 disposal area," as you have it listed.  
23 That would be this case; right?

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1 A. Correct.  
2 Q. Okay. And is your assessment  
3 and restoration plan what you have set  
4 forth in your October 2017 expert report?  
5 A. Yes, it is.  
6 Q. Okay. And I understand there  
7 are two additional documents that we'll  
8 talk about. There was a supplement from  
9 November 8, 2017, and then a rebuttal  
10 report from the end of April 2018.  
11 Right?  
12 A. Yes.  
13 Q. Okay. All right. You also have  
14 immediately below the Maxine Mine  
15 reference a listing for "Environmental  
16 and stability assessment for the bottom  
17 and fly ash containment pond for the  
18 Barry electric generating facility in  
19 Mobile, Alabama." Right?  
20 A. Correct.  
21 Q. So this Maxine Mine assessment  
22 that you have prepared and the assessment  
23 that you've listed for fly ash pond in

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1 Mobile are the two projects that you've  
2 done in Alabama?  
3 A. They are two projects I've done  
4 in Alabama, yes.  
5 Q. Okay. Have you done any other  
6 projects in Alabama?  
7 A. The two I mentioned before when  
8 you asked about mining projects in  
9 Alabama and I mentioned the cement  
10 plants.  
11 Q. Oh, okay. Yeah. Let me clarify  
12 my question, then.  
13 A. As Burgess, though, those are  
14 the only two.  
15 Q. Okay. Have you done any project  
16 in Alabama involving coal mining other  
17 than Maxine?  
18 A. No.  
19 Q. Okay. Now, if you'll look with  
20 me at the next three points listed on  
21 your experience, the references to the  
22 Kearl -- am I pronouncing that correctly,  
23 Kearl?

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1 A. Correct.  
2 Q. -- Oil Sands project, Kearl  
3 Initial Development, and Kearl Expansion.  
4 And then the next reference is to again  
5 Kearl Oil Sands and Kearl Expansion. And  
6 then there is a third bullet that  
7 references Kearl Mine development and  
8 operations. Are all three of those  
9 related?  
10 A. Yes, they are.  
11 Q. Okay. Same site?  
12 A. Yes, they are.  
13 Q. All right. And where is Kearl?  
14 A. Kearl is an oil sands mine north  
15 of Fort McMurray, Alberta.  
16 Q. Okay. All right. If you will,  
17 look a few entries down. I'm looking now  
18 at the entry for "Project manager for the  
19 maintenance phase of the remedial  
20 response to the release of the coal  
21 tailings impoundment associated with the  
22 Obed Mountain Mine." What kind of mine  
23 was that?



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1 A. It was a thermal coal mine.  
2 Q. And what, as you described it  
3 here, does the phrase "release of the  
4 coal tailings impoundment associated with  
5 the Obed Mountain Mine" mean?  
6 A. So most mines have a tailings  
7 impoundment, and tailings are generated  
8 by processing of ore using water, so the  
9 tailings are a semifluid material.  
10 There's a tailings pond, as I understand  
11 it, at Maxine. Because they're  
12 semifluid, they need to be contained  
13 within a dam. In the case of Obed  
14 Mountain dam, that dam failed, and the  
15 water and coal tailings impounded by that  
16 dam flowed down to the Athabasca River.  
17 Q. Okay. All right. Is that an  
18 ongoing project?  
19 A. My involvement was not with the  
20 assessment and repairs. It was with the  
21 managing the maintenance phase for a  
22 period of time when I was at Norwest  
23 Consultants.

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1 Q. Okay.  
2 A. And so it is likely ongoing, but  
3 my involvement with the project ceased  
4 when I moved away from Norwest.  
5 Q. Okay. What was the length of  
6 your personal involvement on that  
7 project?  
8 A. Months.  
9 Q. Do you have an estimate as to  
10 how many months?  
11 A. Three to six.  
12 Q. Okay. Do you have a judgment as  
13 to on how many occasions you were  
14 personally boots on the ground at that  
15 location?  
16 A. Once.  
17 Q. Again, you were working on the  
18 maintenance phase of the remedial  
19 response?  
20 A. Correct.  
21 Q. Okay.  
22 A. So we were assigned that  
23 project, and then I took a job with

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1 SNC-Lavalin, so it stayed with Norwest.  
2 Q. All right. You also list  
3 "Preliminary engineering and permitting  
4 support for proposed metallurgical coal  
5 mines located in the Coal Valley and  
6 north of Fernie, British Columbia."  
7 Right?  
8 A. Correct.  
9 Q. All right. What can you tell us  
10 about that project?  
11 A. So, my involvement was when I  
12 was with Norwest. And so there are  
13 basically two types of coal, coal that  
14 are -- is used for thermal power  
15 generation and coal that is used in steel  
16 making, which is called metallurgical  
17 coal.  
18 Q. All right.  
19 A. In that portion of British  
20 Columbia, it's primarily metallurgical  
21 coal. And there are probably six or  
22 eight operating mines. One of Norwest's  
23 areas of expertise was doing assessments

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1 of mines pursuant to them being  
2 developed, you know, economic  
3 feasibility, that sort of thing. So my  
4 involvement would have been on the water  
5 and geotechnical aspects of two mines  
6 that were in the concept stage at that  
7 time.  
8 Q. Okay. Were those projects that  
9 you were able to complete before you left  
10 Norwest, or did they remain ongoing when  
11 you departed?  
12 A. To my knowledge, neither of the  
13 mines was constructed.  
14 Q. Okay. Do you know why?  
15 A. I think that, to answer your  
16 question, the portion of work that  
17 Norwest was doing was completed in both  
18 occasions.  
19 Q. Okay. Do you know why the mines  
20 were not implemented or put in place?  
21 A. Well, in 2013-2014, the price of  
22 metallurgical coal basically crashed.  
23 And so I think the funding for new

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1 projects was probably delayed or removed  
2 at that time by the proponents.  
3 Q. Okay. All right. You also have  
4 a project involved "Hydrologic assessment  
5 and reclamation planning for the former  
6 mine pit associated with Barkerville  
7 Golds's," is that Quesnel River? Is that  
8 how you pronounce it?  
9 A. Yes.  
10 Q. Okay. Quesnel River Mine. Was  
11 it a gold mine?  
12 A. It was an old gold mine, yes.  
13 Q. Okay. How long had it been  
14 closed at that point?  
15 A. The gold line had been  
16 suspended, reactivated, suspended,  
17 reactivated.  
18 Q. Okay.  
19 A. And so at the time I was working  
20 on it, there was a portion of the mine  
21 that was going to continue to be mined  
22 and had a portion that was going to be  
23 permanently closed. So my involvement

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1 was on the portion that was going to be  
2 permanently closed. My understanding is  
3 it's still operating.  
4 Q. Okay.  
5 A. I don't know that for sure, but  
6 I believe that's the case.  
7 Q. Okay. All right. And then the  
8 final project that I wanted to ask you  
9 about regarding mining and mine-related  
10 experience that you have listed is of the  
11 "Investigation and design of waste rock  
12 dumps and mine infrastructure for the  
13 Line Creek coal mine located near  
14 Sparwood, British Columbia."  
15 Okay. Can you tell us what you  
16 did with regard to the Line Creek coal  
17 mine?  
18 A. So I had -- first of all, this  
19 was early in my career. And as part of  
20 the mine development, especially in  
21 mountainous regions, the mine waste  
22 dump -- this is an open pit mine, so  
23 relative to Maxine Mine, there's a much

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1 higher volume of waste rock generated.  
2 And so we were tasked with analyzing the  
3 stability of the foundation and the  
4 slopes associated with those large rock  
5 dumps. We were also retained to do some  
6 design of water management systems  
7 leaving the mine.  
8 Q. Okay.  
9 A. Sedimentation ponds, diversions,  
10 that sort of thing.  
11 Q. All right. What company were  
12 you employed by at the time you worked on  
13 that project?  
14 A. That was a Komex project.  
15 Q. Okay. How long did you work on  
16 that project?  
17 A. Well, our involvement in Line  
18 Creek essentially continued the entire  
19 time I was at Komex. It was a  
20 long-standing customer, and projects were  
21 initiated and completed.  
22 Q. Okay.  
23 A. Throughout the time, as I

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1 recall.  
2 Q. All right. And according to  
3 your CV, you were at Komex from 1987 to  
4 2006; right?  
5 A. Correct. There was a two-year  
6 period of time when I wasn't there, but.  
7 Q. Okay.  
8 A. Through that period.  
9 Q. All right. What was the  
10 two-year period in which you were not at  
11 Komex?  
12 A. I moved for a brief period of  
13 time for personal reasons to Ontario, so.  
14 Q. Okay. What did you do while you  
15 were in Ontario for employment?  
16 A. I was environmental engineer for  
17 Conestoga-Rovers & Associates.  
18 Q. Okay. Is there any particular  
19 reason that's not listed on your CV?  
20 A. No particular reason.  
21 Q. Okay. When were you working in  
22 Ontario for Conestoga-Rovers?  
23 A. 1992 and 1993. Sorry, 1993 and

<p style="text-align: right;">Page 37</p> <p>1 1994.</p> <p>2 Q. Why, then, does your CV show</p> <p>3 continuous employment from 1987 to 2006</p> <p>4 at Komex?</p> <p>5 A. There's no -- there's no reason</p> <p>6 per se. I try to keep my CV reasonably</p> <p>7 short. Other than that. There was</p> <p>8 nothing unique about my employment at</p> <p>9 CRA.</p> <p>10 Q. Do you think it's important when</p> <p>11 someone has a CV that the CV be accurate?</p> <p>12 A. Yes. I believe that my CV</p> <p>13 accurately depicts the experience I've</p> <p>14 had through my career.</p> <p>15 Q. Okay. Notwithstanding that it</p> <p>16 leaves off two years of employment at a</p> <p>17 different company; right?</p> <p>18 A. My CV does not include the</p> <p>19 employment with CRA, but it does include</p> <p>20 some of the projects I worked.</p> <p>21 Q. Okay.</p> <p>22 A. There was no intent to mislead</p> <p>23 in that. It's simply a matter of trying</p>	<p style="text-align: right;">Page 39</p> <p>1 to you asking him three times.</p> <p>2 MR. DAVIS: I'm just trying to</p> <p>3 understand why he's got inaccurate</p> <p>4 information on his CV.</p> <p>5 MR. BROCK: And he has answered</p> <p>6 that twice.</p> <p>7 Q. (By Mr. Davis) There's an</p> <p>8 objection on the record, but you're</p> <p>9 welcome to answer the question.</p> <p>10 A. Well, I -- we can read back my</p> <p>11 previous answer.</p> <p>12 Q. Okay. So you don't care to say</p> <p>13 anything further?</p> <p>14 A. I can tell you that, in my</p> <p>15 opinion, the positions I've held that are</p> <p>16 written in my CV accurately depict the</p> <p>17 types of experience that I've had that</p> <p>18 are relevant to what I'm doing today. So</p> <p>19 I don't see any problem with the omitting</p> <p>20 the Conestoga-Rovers period of time. And</p> <p>21 prior to joining -- it's not nine years,</p> <p>22 by the way, with Komex, it was quite a</p> <p>23 bit longer than that. Prior to --</p>
<p style="text-align: right;">Page 38</p> <p>1 to make my CV brief enough so that</p> <p>2 potential clients can look at it without</p> <p>3 spending too much time seeing what I've</p> <p>4 done.</p> <p>5 Q. Okay. And understand I'm not</p> <p>6 implying anything. I'm just trying to</p> <p>7 understand the difference between what</p> <p>8 you're telling me and what I see on the</p> <p>9 document, so.</p> <p>10 A. Correct.</p> <p>11 Q. Please understand that.</p> <p>12 A. Yes.</p> <p>13 Q. Okay. And you don't see any</p> <p>14 issue with showing a continuous nine-year</p> <p>15 span of employment with Komex</p> <p>16 notwithstanding that that's not factually</p> <p>17 accurate?</p> <p>18 MR. BROCK: I object to the</p> <p>19 question. He has answered the question</p> <p>20 now twice.</p> <p>21 MR. DAVIS: Are you instructing</p> <p>22 him not to answer?</p> <p>23 MR. BROCK: No. I'm objecting</p>	<p style="text-align: right;">Page 40</p> <p>1 Q. You're exactly right. Excuse</p> <p>2 me. It's nineteen years, isn't it?</p> <p>3 A. That's right. So, you know,</p> <p>4 before that period of time, I had a brief</p> <p>5 job with an oil company, a brief job with</p> <p>6 another consulting company. But I don't</p> <p>7 think that's material to what I'm doing</p> <p>8 now, so that's why it's not on the</p> <p>9 resumé.</p> <p>10 Q. Okay. What oil company did you</p> <p>11 work for?</p> <p>12 A. Dome Petroleum.</p> <p>13 Q. When?</p> <p>14 A. 1981.</p> <p>15 Q. What's the other company that</p> <p>16 you worked for?</p> <p>17 A. I worked as a -- it was not</p> <p>18 incorporated, but I worked as a</p> <p>19 contractor, a technical contractor after</p> <p>20 I graduated from the University of</p> <p>21 California. And I worked for a number of</p> <p>22 companies. I worked for Gulf, I worked</p> <p>23 for Arctic Offshore Exploration, I worked</p>

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1 for a company called Hardy Moss out of  
2 California. But these were all brief  
3 assignments that aren't material to what  
4 I'm doing now, so that's why they're not  
5 in there.  
6 Q. Okay. What span of time does  
7 that contracting work cover?  
8 A. Pre-Komex.  
9 Q. Okay. So from the time of your  
10 graduation from the University of  
11 California with your master's degree  
12 until you became employed by Komex in  
13 1987?  
14 A. Correct.  
15 Q. Okay. And when you say that  
16 experience is not material to what you  
17 are doing now, what do you mean?  
18 A. I mean it is not -- the type of  
19 work I did at that time is not consistent  
20 with the type of work I'm doing now.  
21 Q. Did you finish your answer?  
22 A. I did.  
23 Q. Okay. All right. Now if you

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1 will, look for me on page 3 of your CV.  
2 You have a heading that reads  
3 "Environmental Impact Assessment and  
4 Permitting." Were any of the projects  
5 you have listed there in the United  
6 States?  
7 (Witness reviews document.)  
8 A. Yes.  
9 Q. Okay. Which one or ones?  
10 A. So if you look at the second to  
11 the final bullet.  
12 Q. Okay. I see it.  
13 A. That summarizes my experience  
14 primarily with Lafarge and of the  
15 facilities I worked at, assessed and  
16 helped them with permitting. About half  
17 were in the United States.  
18 Q. Okay. What do you -- I want to  
19 make sure I understand what you have got  
20 here. It says environmental assessment  
21 and permitting. Was there a formal  
22 program of environmental assessment that  
23 was prescribed by regulations, or is it

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1 an environmental assessment where you are  
2 going in and looking at specific things  
3 based on some program of professional  
4 standards or both?  
5 A. It was a program of assessment  
6 that was prescribed internally by Lafarge  
7 to -- there's an off-spec product that  
8 they refer to as cement kiln dust that is  
9 disposed or stored at their -- at many of  
10 their cement plants, not all.  
11 Q. Okay.  
12 A. And they were doing an internal  
13 assessment to evaluate whether there was  
14 any environmental implications associated  
15 with that kiln dust, and if so, what they  
16 should do about it.  
17 Q. Okay. Have you ever worked on  
18 an environmental impact study such as is  
19 prescribed under certain circumstances  
20 under the United States federal neatness  
21 statute, NEPA?  
22 A. No, I have not in the United  
23 States.

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1 Q. Okay. Are you familiar with the  
2 environmental impact statement process  
3 generally speaking?  
4 A. Yes. There's a similar process  
5 in the areas that I have worked with.  
6 Q. Okay.  
7 A. And there's a similar process  
8 internationally.  
9 Q. Okay. Good.  
10 A. They're all similar, but not  
11 identical.  
12 Q. I understand. You're familiar  
13 with the process, then, in Canada; right?  
14 A. Yes.  
15 Q. Okay. And what is that process  
16 called in Canada? Is it called  
17 environmental impact assessment?  
18 A. In most provinces it is, yes.  
19 Q. Okay.  
20 A. It's a provincially regulated  
21 activity, primarily. There is a federal  
22 impact assessment process as well.  
23 Q. Okay

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1 A. But it's either referred to as  
2 an environmental impact assessment or an  
3 environmental assessment.  
4 Q. Okay. What are the elements of  
5 an environmental impact assessment?  
6 A. The formally --  
7 Q. The form that you're familiar  
8 with.  
9 A. Yes. Well, there are a lot of  
10 components to it.  
11 Q. Right. So generally, as best  
12 you can as you sit here today.  
13 A. So they break down into what I  
14 would refer to as terrestrial issues.  
15 Q. Okay.  
16 A. Water resources and aquatic  
17 issues. And social and economic issues.  
18 Air emissions-related issues.  
19 Q. Okay.  
20 A. And they're bundled in that  
21 manner. And they're likely twenty  
22 some-odd components. I'm sure if I tried  
23 to list them, I would inadvertently leave

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1 one or two out.  
2 Q. Certainly. Okay. I understand  
3 those, those categories as you've  
4 described them. Can you give us some  
5 examples of the things that would be part  
6 of the terrestrial assessment?  
7 A. An assessment of soils, an  
8 assessment of vegetation, an assessment  
9 of wildlife, and an assessment of the  
10 reclamation requirements, or conservation  
11 and reclamation, would be the four main  
12 ones that I'm familiar with.  
13 Q. Okay. All right. And can you  
14 give us some examples of elements that  
15 would be under the heading of water and  
16 aquatic?  
17 A. Yes. Surface water,  
18 groundwater. And then bundled, aquatic  
19 life, it might be fish, it might be  
20 benthic organisms, might be other things.  
21 Q. Okay.  
22 A. And then the groundwater and  
23 surface water components are typically

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1 divided into quantity issues and quality  
2 issues.  
3 Q. Okay. All right. Can you give  
4 me some examples of what would be  
5 assessed under the social and economic  
6 category?  
7 A. The economic impact of a  
8 project, typically employment and money  
9 generated by the economic activity.  
10 Other aspects would be potential adverse  
11 effects to neighboring land users or  
12 stakeholders.  
13 Q. Okay. And then finally, the  
14 air-related category, can you give me  
15 some examples there?  
16 A. Air would be air emissions  
17 modeling and then impact assessment on  
18 air quality.  
19 Q. Okay.  
20 A. To be clear, I'm not an air  
21 expert, but.  
22 Q. Right.  
23 A. But it's a process of looking at

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1 the emissions, either point source  
2 emissions or fugitive emissions, and what  
3 effects that might have on whether it's  
4 people or aesthetic issues or animals,  
5 wildlife.  
6 Q. Okay. And so I understand your  
7 testimony, these are provincially  
8 regulated assessments?  
9 A. Primarily.  
10 Q. Okay.  
11 A. And there are federal  
12 overlapping rules as well.  
13 Q. Okay.  
14 A. I think a similar situation  
15 exists in the United States.  
16 Q. Okay. All right. But in any  
17 particular instance, if an environmental  
18 impact assessment is required, there is a  
19 body of regulations to which one could  
20 refer that would set out all of the  
21 requirements?  
22 A. Correct. Sometimes two  
23 overlapping



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1 Q. Okay. In the environmental  
2 impact assessment scenario that exists in  
3 Canada with which you're familiar, to  
4 what kind of entities does that apply?  
5 And let me try and give you a little  
6 predicate that may make that question  
7 make more sense.  
8 In the United States, for  
9 example, without getting into the  
10 technicalities, there has to be some  
11 level of nexus with a governmental action  
12 to trigger the process. Is there a  
13 similar linkage or trigger under Canadian  
14 law, or does it have some other thing  
15 that --  
16 A. No, there are triggers.  
17 Q. Okay.  
18 A. Some of which are objective and  
19 some of which are subjective.  
20 Q. Okay.  
21 A. Meaning the regulator will use  
22 their discretion in the subjective cases.  
23 Q. All right. Can you give me a

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1 few examples for purposes of our  
2 understanding?  
3 A. A mine of a certain size, a  
4 petrochemical facility of a certain size.  
5 Q. Okay. Do you happen to know  
6 what size of mine would require that kind  
7 of oversight or engagement?  
8 A. I couldn't quote you the number,  
9 but a mine site such as Maxine would be  
10 large enough to trigger.  
11 Q. Okay.  
12 A. And it also varies from place to  
13 place. There are not identical triggers  
14 in each province.  
15 Q. Okay. If you will please turn  
16 to page 4 of 4, and I'm now looking under  
17 the heading of "Legal and Regulatory  
18 Representation." The first heading I  
19 read to be a reference to both your work  
20 at Maxine, which you're here to talk  
21 about today, and then to your work  
22 related to the ash containment pond at  
23 the Barry electric generating facility in

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1 Mobile. Would that be correct?  
2 A. That's correct.  
3 Q. Okay. All right. And it says  
4 you are giving support to Riverkeeper and  
5 the Southern Environmental Law Center  
6 relating to those facilities. What do  
7 you mean by the word "support" as used  
8 there?  
9 A. What I mean is technical  
10 assessment in my area of expertise.  
11 Q. Okay. Do you perceive your role  
12 in the Maxine case to be an advocate for  
13 Riverkeeper?  
14 A. No.  
15 Q. What do you perceive your role  
16 to be?  
17 A. To be -- to evaluate restoration  
18 options for the GOB pile.  
19 Q. Okay.  
20 A. And then to recommend at a  
21 conceptual level what I believe is a  
22 responsible restoration plan.  
23 Q. All right. In this -- under

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1 this same category of "Legal and  
2 Regulatory Representation," you have  
3 several -- a number of entries that begin  
4 with the word "Represented," and then it  
5 has the name of your client, and then it  
6 continues the description. And my  
7 question here is, what do you mean by  
8 "represented"?  
9 A. I suppose, you know,  
10 representing the technical assessments  
11 that I've done in support of whatever the  
12 issue was that was being regulated or  
13 debated at a legal level.  
14 Q. Okay.  
15 A. I don't know if it's meant to  
16 have any kind of deep meaning other than  
17 to introduce the sentence.  
18 Q. Okay. The reason I ask,  
19 actually, has an analogy in U.S. law, and  
20 the analogy that I was trying to get  
21 clarification on was, in certain kinds of  
22 tax cases, accountants, as opposed to the  
23 usual case where you would require a



<p style="text-align: right;">Page 53</p> <p>1 lawyer, can represent people in certain 2 kinds of proceedings with the IRS. So I 3 was really seeking clarification about 4 whether there was some analogous 5 situation where you would engage in 6 actual advocacy and representation under 7 Canadian law. But I understand your 8 answer. 9 Okay. All right. We've been 10 going almost an hour, and I'm about to 11 move into your expert report. Would you 12 like to take a break? 13 A. Sure. 14 (Break taken.) 15 Q. (By Mr. Davis) All right, Mr. 16 Johnson. You now have in front of you 17 what we've marked as Exhibit 3 to your 18 deposition. Will you take a moment, look 19 at the document, and identify it for us 20 for the record. 21 (Defendant's Exhibit 3 was marked for 22 identification and is attached.) 23 A. Yes. This is the report that I</p>	<p style="text-align: right;">Page 55</p> <p>1 similar manner, reclaiming and 2 remediating sites. These are words that 3 are in common practice. Restoration, by 4 that I mean restoring the Tributary 1 and 5 the lands associated with the GOB pile to 6 something approximately equivalent to 7 what existed prior to that GOB pile being 8 placed and in a manner that deals 9 responsibly with the pollutants that are 10 migrating out of that pile and into the 11 either Tributary 1 or the Locust Fork. 12 Q. Okay. Had you heard the acronym 13 GOB before your involvement in the Maxine 14 case? 15 A. No. 16 Q. All right. Had you heard the 17 term "geologic overburden"? 18 A. Yes. 19 Q. Okay. And what is geologic 20 overburden, as you understand it to be? 21 A. I would say that it's the waste 22 rock that separated from the ore in 23 mining, but in this case coal, either as</p>
<p style="text-align: right;">Page 54</p> <p>1 wrote and submitted in October of last 2 year. 3 Q. All right. Will you confirm for 4 us that the document is complete, or 5 appears to be complete? 6 A. It does appear to be complete, 7 correct. 8 Q. Okay. Very good. All right. 9 If you will, let's look at the page 10 you've designated as ES-1 this is in your 11 "Executive Summary" section. The last 12 sentence of the first paragraph reads, "I 13 was retained by SELC to provide analysis 14 and expert opinion regarding the 15 restoration of the Geologic Overburden 16 (GOB) that has been placed at the Site," 17 Maxine site. 18 Did I read that correctly? 19 A. Yes. 20 Q. All right. What do you mean by 21 "restoration of the Geologic Overburden"? 22 A. By restoration, I would mean 23 reclaiming -- so words that get used in a</p>	<p style="text-align: right;">Page 56</p> <p>1 overburden, rock that exists above the 2 coal, or interburden, rock that exists 3 within the coal. 4 Q. Okay. All right. 5 A. I've made a point in my report 6 of referring to the material as mine 7 waste. 8 Q. Okay. 9 A. Which is a term that I see as -- 10 or I've been more accustomed to using. 11 Q. Okay. All right. And just so 12 we're perfectly clear about your use of 13 the term "mine waste" and what it means, 14 what is the definition of mine waste as 15 you have used it? 16 A. Well, mine waste would refer to 17 the actual material. So it would be the 18 same materials, but it's a, you know, a 19 waste product generated -- natural waste 20 product generated by the mining activity. 21 Q. Okay. 22 A. As opposed to rags and barrels 23 and things like that that are not</p>

<p style="text-align: right;">Page 57</p> <p>1 natural.</p> <p>2 Q. I understand. So, am I correct,</p> <p>3 then, that what we're talking about is</p> <p>4 rock and dirt and minerals?</p> <p>5 A. Yes. And water.</p> <p>6 Q. Okay. Do you consider the water</p> <p>7 to be part of the mine waste?</p> <p>8 A. Well, I believe documents showed</p> <p>9 that there was what they referred to as</p> <p>10 washer rock deposited in the GOB pile.</p> <p>11 And washer rock, obviously, is a mixture</p> <p>12 of water and the mine waste. So yes,</p> <p>13 that would be part of the waste that was</p> <p>14 placed in that.</p> <p>15 Q. Okay. So --</p> <p>16 A. Most mines have a water cleaning</p> <p>17 process in them. And so, yes, there is</p> <p>18 waste water generated.</p> <p>19 Q. Okay. Do you understand washer</p> <p>20 rock to be both rock in water as opposed</p> <p>21 to rock that has been washed?</p> <p>22 A. Both, I suppose. There's water</p> <p>23 entrained in the washer rock and there's</p>	<p style="text-align: right;">Page 59</p> <p>1 summarize them because the document</p> <p>2 speaks for itself, but. As I read this,</p> <p>3 your assessment and opinion is based on</p> <p>4 observations you made at a site visit and</p> <p>5 inspection. That's the two days you</p> <p>6 spent on site; right?</p> <p>7 A. Correct.</p> <p>8 Q. Data collected through sampling</p> <p>9 and analysis. Work completed by other</p> <p>10 consultants, information obtained by</p> <p>11 Riverkeeper and SELC, discovery documents</p> <p>12 provided by Drummond, publicly available</p> <p>13 information, and your judgment and</p> <p>14 experience. Right?</p> <p>15 A. Correct.</p> <p>16 Q. All right. So that's the</p> <p>17 complete list of what your assessment and</p> <p>18 your opinion is based on?</p> <p>19 A. Correct.</p> <p>20 Q. Okay. All right. With regard</p> <p>21 to the data collected, is all the data</p> <p>22 that you relied on referenced in your</p> <p>23 reports? And I mean that plural, both</p>
<p style="text-align: right;">Page 58</p> <p>1 the rock, obviously.</p> <p>2 You know, I'm just thinking back</p> <p>3 to the original question of what you</p> <p>4 asked my understanding of the waste to</p> <p>5 be. And there would be coal in the -- in</p> <p>6 that mixture, too.</p> <p>7 Q. Okay.</p> <p>8 A. And I can't remember whether you</p> <p>9 said that.</p> <p>10 Q. I didn't. I said mineral, but.</p> <p>11 A. Yeah. And so coal would not be</p> <p>12 a mineral, it would be an organic</p> <p>13 compound, so.</p> <p>14 Q. Okay. And this would be the</p> <p>15 coal that could not be economically</p> <p>16 extracted from the rock or dirt?</p> <p>17 A. Yeah. Or mixed in, yeah.</p> <p>18 Q. So there would be a residue?</p> <p>19 A. Yes.</p> <p>20 Q. Okay. All right. The second</p> <p>21 paragraph in your executive summary lists</p> <p>22 some things that your assessment and</p> <p>23 opinion is based on. And I'm going to</p>	<p style="text-align: right;">Page 60</p> <p>1 original, rebuttal, and your interim</p> <p>2 memorandum.</p> <p>3 A. All the data that I reviewed and</p> <p>4 considered in my assessment is not</p> <p>5 included in the report. What I tried to</p> <p>6 do in my report was highlight the data</p> <p>7 that is material to planning the</p> <p>8 restoration. So as you're probably</p> <p>9 aware, there was data generated when the</p> <p>10 mine was in operation, various water</p> <p>11 quality tests. That, for example, is not</p> <p>12 included in my report. There were more</p> <p>13 analytes in the suite of tests that were</p> <p>14 done by aquilogic. That's not in my</p> <p>15 report.</p> <p>16 Q. Okay.</p> <p>17 A. So there is a body of data that</p> <p>18 is not specifically in my report that I</p> <p>19 did review.</p> <p>20 Q. Okay.</p> <p>21 A. But it would be included in</p> <p>22 those documents that I stated I relied</p> <p>23 upon</p>

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1 Q. Okay. All right. And that's  
2 what I'm trying to get my arms around,  
3 because one of my jobs is to understand  
4 everything that you looked at that  
5 provides a basis for your opinions. So  
6 let me see.  
7 Is there any data that you  
8 reviewed that is not referenced in your  
9 reports that influenced your assessment  
10 and conclusions?  
11 A. Is there anything -- can you  
12 repeat that so that I --  
13 Q. Yeah.  
14 MR. DAVIS: Can you read it  
15 back?  
16 Q. It's difficult to try and ask  
17 these questions, so if you'll bear with  
18 me.  
19 (Requested portion read.)  
20 A. No. I would repeat, though,  
21 that my judgment and experience has  
22 influenced my recommendations.  
23 Q. I understand. And we'll discuss

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1 that as well. I understand that you  
2 looked at a broader universe of  
3 information and material than may be  
4 referenced in your report. And I also  
5 understand and I think any reader would  
6 assume that if you referenced specific  
7 things in your report, that those would  
8 be part of the basis for your assessment.  
9 In other words, those are things that  
10 influenced your assessment.  
11 A. Correct.  
12 Q. Okay. So what I am trying to  
13 understand and ask you an intelligible  
14 question about is, is there anything  
15 that -- any body of data, however you  
16 would describe it, in whatever form it  
17 was in, that led you to a certain  
18 conclusion or assessment that's reflected  
19 in your report that is otherwise not  
20 cited in your report? Does that make  
21 sense?  
22 A. That makes sense to me. And the  
23 answer is no

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1 Q. Okay. Okay. You reference in  
2 this paragraph information obtained by  
3 Riverkeeper and SELC. What information  
4 are you referring to there?  
5 A. What I'm referring to primarily  
6 is there's a number of documents that are  
7 listed in my references that reflect, or  
8 the subject matter, they were prepared by  
9 ABC or PELA, for example, during the  
10 operating period of the mine. And they  
11 were provided to me by SELC and  
12 Riverkeeper.  
13 Q. Okay. And --  
14 A. And I'm not sure in each and  
15 every instance how they were obtained.  
16 Q. I understand. And some of  
17 those, then, could also be in the  
18 category of discovery documents provided  
19 by Drummond; right?  
20 A. That's a possibility, for sure.  
21 Q. Okay. And as I understand your  
22 answer previously, any publicly available  
23 information that you deemed important for

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1 your assessment, you've referenced in  
2 your reports.  
3 A. Correct.  
4 Q. Okay. All right. Now, let's  
5 talk about your judgment and experience.  
6 Your assessment and opinion is based in  
7 part, in addition to the other things  
8 you've listed, on your judgment and  
9 experience. So, what do you mean by  
10 judgment and experience here?  
11 A. First and foremost, it would be  
12 my judgment and experience on --  
13 regarding developing up restoration plans  
14 that can be relied upon.  
15 Q. Okay.  
16 A. To work. So, you know, you  
17 would bundle my experience in designing  
18 and implementing remediation, restoration  
19 plans over my career that are relevant to  
20 the -- to Maxine.  
21 Q. Okay.  
22 A. And then the other part of  
23 judgment and experience would be the

<p style="text-align: right;">Page 65</p> <p>1 circumstances. Parking the whole issue 2 of regulatory compliance in terms of does 3 this number exceed that number, parking 4 that for a minute, the types of controls 5 that need to be put in place to safely 6 restore mine waste in this case in a 7 manner that's protective of the 8 surrounding watershed. 9 Q. Okay. And does the application 10 of your judgment and experience to the 11 other things that you have listed, your 12 observations, documents that you've 13 reviewed, sampling and analysis, does 14 that involve interpretation of the data, 15 you know, from sampling, the documents, 16 and other information? 17 A. Correct. I think, you know, a 18 complete answer to your question, because 19 I think you brought up the site 20 inspection as well, it would be my 21 judgment and experience in making sense 22 out of what it is that I observed during 23 my field visit.</p>	<p style="text-align: right;">Page 67</p> <p>1 right. How did you complete your 2 assessment and develop your opinion in 3 cooperation with Mr. Brown? 4 A. So on the -- on the cooperation 5 front, when we were on the site doing 6 tasks, there was a limited period of time 7 available to us to sample water, sample 8 groundwater, sample mine waste, all the 9 things that were done, geophysics. So we 10 divided tasks so they could be done 11 efficiently in the period of time. 12 And then on the analytical and 13 assessment front, the two main areas 14 where I relied upon the aquilogic report 15 would be in the development and 16 interpretation of, say, criteria for 17 water quality and also in the I would say 18 calculation or estimation of the amount 19 of erosion that we observed, trying to 20 quantify and corroborate what we had 21 observed on the site with regard to 22 erosion. 23 Q. Okay. All right. With regard</p>
<p style="text-align: right;">Page 66</p> <p>1 Q. Okay. 2 A. So, you know, number one on that 3 list would be the severe erosion that's 4 evident in the GOB pile. That's not 5 interpretation of data. That's 6 interpretation of the land forms of what 7 I've seen and making sense out of how 8 they were developed and how they 9 continued to erode and transport 10 materials down into the Locust Fork and 11 into Tributary 1. So that, that's 12 judgment and experience that applies to 13 the observational approach of what I did. 14 And then there's judgment and experience 15 that applies to the analytical data. 16 Q. Okay. All right. In the next 17 paragraph, you say you developed your 18 opinion in cooperation with aquilogic; 19 right? 20 A. Yes. 21 Q. And aquilogic is Anthony Brown. 22 A. Yes. 23 Q. In this instance; right? All</p>	<p style="text-align: right;">Page 68</p> <p>1 to your reliance on the aquilogic report, 2 would you agree with me, then, that 3 aquilogic is wrong to any extent that 4 report is wrong and you relied upon it, 5 that what you derived from that for your 6 assessment would be incorrect? 7 A. The answer is partly yes, and 8 I'll explain my answer. 9 Q. Certainly. 10 A. The -- so for example, one of 11 the areas where I would have relied upon 12 aquilogic would be the criteria that were 13 established for water quality. So 14 clearly, if the criteria for one of those 15 elements was incorrect and the box was 16 colored incorrectly, then that would be 17 wrong. 18 Q. Okay. 19 A. Sorry, I've got a tickle in my 20 throat, so. 21 Q. That's okay. Take your time. 22 A. The second part is, where I 23 don't think that would be the case --</p>

<p style="text-align: right;">Page 69</p> <p>1 Q. Okay.</p> <p>2 A. -- is designing or</p> <p>3 conceptualizing the restoration plan.</p> <p>4 Q. Okay.</p> <p>5 A. Excuse me.</p> <p>6 (Discussion held off the record.)</p> <p>7 Q. (By Mr. Davis) All right. If</p> <p>8 you'll look at the next paragraph, which</p> <p>9 is some introductory language and then</p> <p>10 three bullet points, is that your</p> <p>11 analysis or is that analysis from</p> <p>12 aquilologic?</p> <p>13 A. This is my analysis.</p> <p>14 Q. Okay. All right. For each of</p> <p>15 your three bullet points, will you tell</p> <p>16 us what the basis for that conclusion is.</p> <p>17 A. So the first one, what was</p> <p>18 immediately striking to me when I -- so</p> <p>19 to put this into context, I was -- the</p> <p>20 first thing we did when we arrived on the</p> <p>21 site is I traversed the traversable parts</p> <p>22 of the GOB pile. And what was striking</p> <p>23 was the large quantity of erosion that I</p>	<p style="text-align: right;">Page 71</p> <p>1 migrated outside of the GOB pile and were</p> <p>2 traveling down and then training either</p> <p>3 in the former basins or had carried on</p> <p>4 into Locust Fork.</p> <p>5 So when I was there, I concluded</p> <p>6 that based on the geometry of the erosion</p> <p>7 features that I saw, that the amount of</p> <p>8 materials that would be transported in a</p> <p>9 significant rainfall event -- and Alabama</p> <p>10 gets significant rainfall events -- would</p> <p>11 be on the order of tens of thousands of</p> <p>12 cubic yards and maybe even as high as a</p> <p>13 hundred thousand cubic yards in one of</p> <p>14 your major storms. This is an assessment</p> <p>15 that I made on the site using estimates</p> <p>16 of the geometries of the things that I</p> <p>17 saw.</p> <p>18 I also -- it was clear -- so</p> <p>19 I've worked on a number of sites that</p> <p>20 have acid mine drainage. And it was</p> <p>21 clear from looking at the surface water,</p> <p>22 some of which were sampled by the people</p> <p>23 on site, not by me, but the people on the</p>
<p style="text-align: right;">Page 70</p> <p>1 observed, or evidence of erosion. And</p> <p>2 that was basically three types of</p> <p>3 erosion, I would say. One is the erosion</p> <p>4 of what I refer to as -- I want to make</p> <p>5 sure I get this right, but basically flow</p> <p>6 channels through the GOB pile, so when it</p> <p>7 rains, water accumulates in low places,</p> <p>8 and then there are drainage patterns,</p> <p>9 drainage features in the actual GOB pile.</p> <p>10 And so the erosion that occurred in those</p> <p>11 drainage features was not feet deep, it</p> <p>12 was tens of feet deep. It was far higher</p> <p>13 than my height. And this wasn't in</p> <p>14 Tributary 1. This was just in places</p> <p>15 where small drainage patterns had</p> <p>16 established.</p> <p>17 And there were large escarpments</p> <p>18 where trees were falling down. Clearly,</p> <p>19 there was evidence of recent exposure of</p> <p>20 those materials, so there was kind of a</p> <p>21 slope erosion in addition to this</p> <p>22 drainage pattern erosion. And then there</p> <p>23 was large volumes of mine waste that had</p>	<p style="text-align: right;">Page 72</p> <p>1 site at the same time, that that surface</p> <p>2 water was heavily impacted by acid mine</p> <p>3 drainage. It's a -- it has an appearance</p> <p>4 that is consistent from place to place.</p> <p>5 And that same appearance was evident in</p> <p>6 places where the groundwater was seeping</p> <p>7 out and discharging, for example, into</p> <p>8 the Locust Fork. So, you know, those</p> <p>9 were observations that I made when I was</p> <p>10 on the site. And those were supported by</p> <p>11 the subsequent analyses.</p> <p>12 Q. Okay. Can you explain for me</p> <p>13 how you made -- and I may not get the</p> <p>14 words in the right order, so bear with</p> <p>15 me -- how you made an estimate of erosion</p> <p>16 by visually looking at the geometries of</p> <p>17 the site.</p> <p>18 A. So for example, on the discharge</p> <p>19 end of things where the materials</p> <p>20 accumulate outside of the area that</p> <p>21 the -- that is being eroded. So you look</p> <p>22 at it from two perspectives, where the</p> <p>23 material came from and where it's going</p>



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1 So based on the geometry of what  
2 those basins would have looked like when  
3 they were constructed, it was evident  
4 that tens of thousands, many tens of  
5 thousands of cubic yards of mine waste  
6 had filled those basins and then carried  
7 on into the river. So by that  
8 estimation, you can tell the volume is  
9 bigger than that.

10 Going to the source, there were  
11 drainage features that were hundreds of  
12 yards long, tens of yards wide, and three  
13 to five yards deep. So by estimating  
14 those geometries, you can come up with a  
15 value that approximates the amount of  
16 erosion that has occurred in that place.

17 And then on the escarpment you  
18 have a different sort of geometry. You  
19 have extremely steep slopes, you have  
20 recent exposure, and then you have an  
21 area.

22 So those are the three areas of  
23 erosion where at a conceptual level and

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1 at a high level as I was walking through  
2 the area, I was making estimations in my  
3 head as to what the volumes would have  
4 been.

5 Q. Okay. Correct me if I'm wrong  
6 about this, but do I understand you to be  
7 saying that, for example, on your point  
8 about the tens of thousands of -- was it  
9 tons?

10 A. Cubic yards.

11 Q. -- cubic yards of soil and the  
12 ponds, that you could look at this, at  
13 what you're seeing, eyeball it --

14 A. Correct.

15 Q. -- and --

16 A. And that's why I use the term  
17 tens of -- it's not intended to be  
18 dramatic. It's intended to communicate  
19 an order of magnitude as opposed to a  
20 precise number.

21 Q. Okay. So you eyeball it, you  
22 calculate it in your head, and that's  
23 what you believe to be the case?

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1 A. Correct. In some cases, paced  
2 it out. In some cases, referenced things  
3 like trees and heights to get maybe a  
4 more precise -- or "precise" is probably  
5 not the right word, but a more reliable  
6 estimation than simply eyeballing.

7 Q. Okay. Did you make any field  
8 notes where you recorded these  
9 calculations or visual estimates?

10 A. To my recollection, no. The  
11 field notes that we took had to do with  
12 the sample locations and why we selected  
13 them.

14 Q. Okay. Did you take any field  
15 notes?

16 A. I didn't take them. Chris  
17 Slater was the one who wrote them down,  
18 but he was, in many cases, writing down  
19 what I dictated to him.

20 Q. Have you provided Chris Slater's  
21 field notes to the Black Warrior  
22 Riverkeeper's lawyers?

23 A. I believe they're included in

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1 the aquilogic report. They're not in my  
2 report.

3 Q. Is it your understanding that  
4 Mr. Slater would have been recording  
5 specific instances where you made a  
6 visual assessment of erosion based on --  
7 similar to what you've described?

8 A. I think you might have answered  
9 -- asked me that just a minute ago. I  
10 didn't, to my recollection, dictate to  
11 him what any quantification or estimation  
12 of the volumes.

13 Q. Okay.

14 A. You know, when we got back, I  
15 did review the field notes. And to the  
16 best of my recollection, they had to do  
17 with the sampling locations and why they  
18 were selected.

19 Q. Okay. Thank you for clarifying  
20 that.

21 All right. You mentioned that  
22 you had worked on previous sites where  
23 acid mine drainage, AMD, was an issue



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1 Right?

2 A. Correct.

3 Q. How many sites have you worked

4 on where there were acid mine drainage

5 issues?

6 A. Many. At least ten. Both in

7 the mining area and in the petrochemical

8 area. Because acidification is an issue

9 too in petrochemical processing.

10 Q. Okay.

11 A. So more than ten.

12 Q. Okay. How many coal mining

13 sites?

14 A. There would be -- we don't have

15 acid mine drainage issues with coal

16 mining sites in western Canada. So my

17 experience would be in similar sites with

18 similar excavation and placement of waste

19 rock, but not coal mine. Hard rock

20 mining, for example.

21 Q. Okay. All right.

22 A. Hard rock mining means like

23 metals mining.

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1 Q. I understand. All right. Any

2 instances other than Maxine Mine where

3 there was an acid mine drainage as you've

4 described it?

5 A. Yes.

6 Q. Okay. Which one? Which one or

7 ones? And I'm speaking again of coal

8 mines, acid mine drainage other than

9 Maxine Mine.

10 A. Yeah. So acid rock drainage

11 with a large -- it was a large earthworks

12 project in support of developing oil and

13 gas activities, but it involved the

14 management of the same sorts of shales

15 that included pyrites that generated acid

16 rock in northern B.C. There is two hard

17 rock mines in northern B.C. and in the

18 Yukon that generated acid mine drainage.

19 So I'd used the acid rock drainage and

20 acid mine drainage. And then a large

21 number of sites that are related to

22 sulfur, as opposed to sulfide, in the oil

23 and gas business where that sulfur led to

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1 acid rock drainage, that similar

2 symptomology.

3 Q. Any other coal mines besides the

4 Maxine Mine?

5 A. Where I've observed or evaluated

6 that?

7 Q. Acid mine drainage, right.

8 A. So for those coal mines that we

9 talked about in my CV.

10 Q. Okay.

11 A. In B.C. we do an evaluation of

12 potential acid mine drainage. In those

13 cases it was determined that there wasn't

14 any.

15 Q. Okay. We're still not

16 communicating, so let me try and --

17 A. So situations like Maxine where

18 it's a coal mine and its coal refuse

19 pile, the answer is no, other than

20 Maxine.

21 Q. Okay. All right. Let's look at

22 your second bullet point. And the

23 question is the same as the first, what

Page 80

1 is the basis for your opinion there?

2 A. You're talking about the

3 statement "pollutants are being dissolved

4 in surface water"?

5 Q. Yes.

6 A. So the basis of the opinion in

7 this case is twofold.

8 Q. Okay.

9 A. The observations that I made on

10 the site that -- where I concluded that

11 this is acid rock drainage. The nature

12 of the water, the appearance of the

13 water, the oxidation and precipitation of

14 iron, for example, it had all of the

15 observational traits of acid rock

16 drainage.

17 And then the second part of that

18 is the follow-up analytical work that was

19 done to confirm it.

20 Q. Anything else?

21 A. Well, there was information in

22 the record that was generated during the

23 operational stage of the mine that there

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1 was also data that suggested that this  
2 Maxine Mine, the waste rock was  
3 susceptible.  
4 Q. Okay. Anything else?  
5 A. No.  
6 Q. Okay. Now let's look at your  
7 third bullet point, the one that begins  
8 "pollutants are being dissolved in  
9 groundwater." And same question, what is  
10 the basis for that statement?  
11 A. The basis is the same as the  
12 basis for the surface water. So there  
13 were locations, two or three as I recall.  
14 The main one, groundwater seeping out  
15 beneath the lower dam where you -- or I  
16 was able to observe all of the telltale  
17 effects. And there were one or two  
18 places further up the Tributary 1 that we  
19 refer to it as where groundwater was  
20 seeping out of the waste rock and had the  
21 telltale signs. And then just like  
22 surface water, the follow-up analytical  
23 work and the analytical work that was

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1 done in the past at PELA, I believe.  
2 Q. Okay. All right. Let's look at  
3 the next paragraph. It's your opinion,  
4 as I understand your first sentence, that  
5 the oxidation of sulfide mineral in the  
6 mine waste is the root cause of  
7 contamination that you reference. What  
8 is the basis for that statement?  
9 A. The basis of the statement would  
10 be both my experience that sulfide is the  
11 root cause of acidification. And the, I  
12 guess over the years of practice, I was  
13 generally aware that the rocks associated  
14 with the coal deposits in the formations  
15 in the eastern U.S. were susceptible.  
16 Q. Okay.  
17 A. Because they had the sulfides in  
18 the rock and because the carbonate  
19 concentrations in the rock were  
20 relatively low, it's net acidic.  
21 Q. Okay.  
22 A. So the culprit is almost  
23 certainly sulfide minerals

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1 Q. Okay. Anything else?  
2 A. No.  
3 Q. Okay. And I keep saying  
4 "anything else" because I'm trying to  
5 give you the opportunity to tell us every  
6 basis you can think of.  
7 A. I understand, yeah.  
8 Q. All right. Now, in the next  
9 paragraph, as I understand it, you are  
10 talking about measures that -- you're  
11 saying Drummond, but do you understand  
12 that Drummond did not have any ownership  
13 interest in the Maxine Mine until the  
14 last day of 1985 or the first day of  
15 1986, that prior to that the mine was  
16 ABC?  
17 A. I did understand that the mine  
18 was -- the documents that I reviewed from  
19 back in the day were generated either for  
20 or by ABC.  
21 Q. Okay.  
22 A. But I don't have any knowledge  
23 of the ownership history of the mine.

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1 Q. Okay. So for your purposes, ABC  
2 and Drummond are the same? Is that  
3 correct? Essentially, it's the mine --  
4 whoever is doing the mining?  
5 A. As those names might come up in  
6 my report, correct.  
7 Q. Okay. So with that  
8 clarification, certain measures were  
9 implemented. The first one you list is  
10 "grading and capping a small portion of  
11 the surface of the GOB pile."  
12 What do you mean by "small  
13 portion"? Do you have an estimate as to  
14 how much or what you're referring to  
15 there?  
16 A. Well, there's diagrams of it  
17 certainly in the aquilogic report.  
18 Q. Okay.  
19 A. But the operating company  
20 referred to it as the post-law area.  
21 Q. Okay.  
22 A. So that's the area I'm talking  
23 about

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1 Q. I understand. What is your  
2 understanding of the distinction between  
3 pre-law and post-law?  
4 A. My understanding is that prior  
5 to a date, that the materials that ABC  
6 had placed in the GOB pile occurred prior  
7 to a law that was promulgated federally  
8 and then maybe adopted --  
9 Q. Okay.  
10 A. -- statewide.  
11 Q. All right.  
12 A. That in their view somehow  
13 changed the obligations that they may  
14 have had. And so they treated those two  
15 areas separately. And the area they  
16 capped would have been a reflection of  
17 the area where mine waste had been placed  
18 after that date.  
19 Q. Okay.  
20 A. And I didn't see any information  
21 that led me to understand how they  
22 determined where they placed stuff and  
23 when. That wasn't in the record, how

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1 they determined that boundary.  
2 Q. Okay. Did you not see  
3 documents, including communications  
4 between ABC and various regulatory  
5 entities, indicating changes that needed  
6 to be made to comply with a change in the  
7 law?  
8 A. Yeah. There were documents in  
9 the record that I reviewed that were  
10 regulatory correspondences back and forth  
11 on issues like this, yes.  
12 Q. Okay.  
13 A. I couldn't tell whether they  
14 were a complete selection or the ones  
15 that we continue to have.  
16 Q. I understand.  
17 A. It would appear to me as if they  
18 were, at least the ones that I had an  
19 opportunity to review, were the complete  
20 record, because there would carry on  
21 discussions from things that had happened  
22 previously.  
23 Q. Okay. All right. Did the

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1 difference between pre-law and post-law  
2 areas influence your plan for the site in  
3 any way?  
4 A. In terms of the law, no. In  
5 terms of what they did, yes.  
6 Q. Okay. Can you explain to me  
7 what you mean there?  
8 A. So I'll explain the "yes" part.  
9 So it was -- it was clear to me that by  
10 grading and capping the slopes of the  
11 mine waste, they stabilized that waste.  
12 It was also clear that the same couldn't  
13 be said for the drainage courses in that  
14 -- the area that was capped and graded.  
15 There's places where the Tributary 1  
16 either flows adjacent to it or there's a  
17 drainage course that flows through it or  
18 adjacent to it. And there were areas, as  
19 I stated in my report, where the flowing  
20 water had eroded through the cap. But  
21 outside of those areas, the cap was  
22 effective.  
23 Q. Okay.

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1 MR. BROCK: The cap was what?  
2 THE WITNESS: Effective.  
3 Q. Am I correct that you do not  
4 intend to offer an opinion regarding  
5 whether the different means of handling  
6 material, GOB, at the site, by capping or  
7 not capping it, by pre-law area versus  
8 post-law area, was done compliant with  
9 the particular law in effect at the time?  
10 A. You're correct.  
11 Q. Okay. All right. If you will  
12 please turn on to page ES-2. We're  
13 continuing the list of bullets about  
14 mitigation efforts. Do you know whether  
15 the activity of constructing dams and  
16 sedimentation basins within the stream  
17 course of Tributary 1 was in compliance  
18 with the law at the time it was done?  
19 A. I don't.  
20 Q. Okay. Yeah, that's not  
21 something within the scope of your  
22 opinion; right?  
23 A. Correct.

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1 Q. All right. And similarly, you  
2 don't know whether that action was taken  
3 at the direction of regulatory  
4 authorities, do you?  
5 A. I don't know.  
6 Q. Okay.  
7 A. I would -- so there's inferences  
8 in the documents that I reviewed that the  
9 idea or the concept was one that was  
10 developed at ABC and by ABC's consultants  
11 and presented to the regulators as  
12 opposed to the regulators saying thou  
13 shalt do that. So it's something that I  
14 inferred.  
15 Q. Okay.  
16 A. And I don't think the record  
17 is -- you know, I think the record, if  
18 you were to interpret it, would say that  
19 the idea for the sedimentation ponds and  
20 dams came from the operator, not the  
21 government.  
22 Q. Right. You don't know whether  
23 you've seen the entire record, do you?

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1 A. No. No.  
2 Q. Okay.  
3 A. And it's possible that that  
4 wasn't the case.  
5 Q. Okay.  
6 A. One of the things that --  
7 MR. BROCK: Wait a minute. Just  
8 let him ask a question.  
9 THE WITNESS: Okay. It was a.  
10 Q. Here's my question. What were  
11 you about to tell us?  
12 A. I was just going to clarify why  
13 I bring up the basins and the dams in my  
14 report.  
15 Q. Okay.  
16 A. Is that regardless of what we do  
17 to restore this site, replicating  
18 something like that is necessary to  
19 complete the works to associate with  
20 effective restoration.  
21 Q. Okay.  
22 A. That's why I'm discussing those  
23 things in my report

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1 Q. Okay.  
2 A. They're a necessary part of  
3 restoration.  
4 Q. All right. And would you agree  
5 that vegetative cover is a necessary part  
6 of restoration of the site?  
7 A. Vegetative cover that  
8 effectively reduces erosion, yes.  
9 Q. Okay.  
10 A. And enhances evapotranspiration,  
11 yes.  
12 Q. Okay. All right. I understand  
13 from your report, and I'm looking at the  
14 next section of your executive summary,  
15 that it's your opinion that those  
16 measures that were taken are no longer  
17 effective in mitigating what you defined  
18 as contamination. Right? That's your  
19 opinion.  
20 A. My opinion is -- state that  
21 again, please? Sorry.  
22 Q. "These measures are no longer  
23 effective in mitigating the above-noted

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1 contamination."  
2 A. Correct.  
3 Q. All right. Your opinion  
4 continues to say, they were "likely never  
5 effective," and then you give some  
6 reasons. Okay. So, let's look at those.  
7 Would you agree with me that  
8 "likely" is a word that reflects  
9 speculation as opposed to knowledge?  
10 A. I would say in this case it's a  
11 reasonable deduction.  
12 Q. Okay.  
13 A. I would not use the word  
14 "speculation."  
15 Q. All right. And is the basis for  
16 your deduction the four bullet points  
17 that you set out below?  
18 A. Yes, it is.  
19 Q. All right. Your plan for the  
20 site would involve deforestation;  
21 correct?  
22 A. Correct.  
23 Q. And it would involve excavation

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1 of about two and a half million cubic  
2 yards of material; right?  
3 A. I believe that aquilogic updated  
4 that estimate. And it's, as per the  
5 rebuttal report --  
6 Q. Okay.  
7 A. -- it's more like two million.  
8 Q. All right. Two million cubic  
9 yards, whatever their --  
10 A. Yes.  
11 Q. -- number is. You also indicate  
12 that this deforestation and excavation  
13 plan would require design and  
14 implementation of components that  
15 minimize erosion and pollution transport  
16 during excavation. Correct?  
17 A. Correct.  
18 Q. All right. What measures do you  
19 think would be implemented that would  
20 have the effect that you believe needs to  
21 be put in place?  
22 A. For example, reconstructing the  
23 sedimentation basin. That's a very

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1 common approach to controlling sediment  
2 runoff from a large mining area.  
3 Q. Okay.  
4 A. The -- also control and  
5 treatment of contaminated groundwater and  
6 surface water during the period of time  
7 where it remains contaminated up until  
8 the time when the materials are removed.  
9 Q. All right.  
10 A. Those are two examples. There's  
11 also implementing practices at the  
12 excavation that minimize the tendency for  
13 soils to be eroded and be transported by  
14 water.  
15 Q. Okay.  
16 A. Minimizing the work area, not  
17 working during super rainy conditions,  
18 things like that.  
19 Q. Okay. Anything else?  
20 A. Those would be the main  
21 examples.  
22 Q. Okay.  
23 A. There might be other minor

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1 things.  
2 Q. Your next bullet point is  
3 "control of sediment during excavation  
4 and surface reclamation." That sounds  
5 like you've kind of already started  
6 explaining that.  
7 A. Yeah. They're kind of  
8 different, different ways of looking at.  
9 One is controlling the source, one is  
10 controlling the release.  
11 Q. Okay. So, what would be some  
12 examples of bullet point two?  
13 A. Same, same examples.  
14 Q. All right. Let's look at the  
15 third bullet point, "reclamation of the  
16 exposed original ground surface in a  
17 manner that conforms to the surrounding  
18 landscape"?  
19 A. Yes.  
20 Q. Can you elaborate on what you  
21 mean by that, please.  
22 A. That's a reclamation objective,  
23 to re-create a landscape that's similar

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1 to and conforms with the pre-disturbance  
2 landscape. If one were excavating  
3 material, that is the outcome you want to  
4 look for.  
5 Q. Okay.  
6 A. You wouldn't just leave the bare  
7 ground behind.  
8 Q. All right. Your next point is  
9 "treatment and monitoring of contaminated  
10 surface and ground water." So, what  
11 would be components of that practice?  
12 A. Up until the time that the waste  
13 is removed, any water that comes in  
14 contact with that waste, be it surface  
15 water, groundwater, will be susceptible  
16 to the drainage and the issues that are  
17 discussed there in terms of water  
18 quality. So it would be necessary to  
19 collect that water as best as one could.  
20 You likely couldn't get every drop, but  
21 could get by far most of it, and somehow  
22 neutralize it or treat it so it didn't  
23 have those polluting characteristics when



<p style="text-align: right;">Page 97</p> <p>1 it was released to the Locust Fork.</p> <p>2 Q. Okay. And your final point is</p> <p>3 "safe containment of the mine waste in</p> <p>4 its ultimate point of disposal." So</p> <p>5 again, we're talking about mine waste</p> <p>6 being rock, soil, coal residue?</p> <p>7 A. Yeah. Entrained water.</p> <p>8 Q. Entrained water. And what do</p> <p>9 you think would constitute safe</p> <p>10 containment of the mine waste?</p> <p>11 A. There would be two potentially</p> <p>12 viable approaches.</p> <p>13 Q. Okay.</p> <p>14 A. One would be to mix in crushed</p> <p>15 limestone, for example, that could</p> <p>16 neutralize the acid rock drainage</p> <p>17 immediately upon it occurring so, in</p> <p>18 essence, it doesn't occur. So containing</p> <p>19 it as you might contain a conventional</p> <p>20 landfill with a liner and leaching,</p> <p>21 collection, and water treatment.</p> <p>22 Q. Okay.</p> <p>23 A. So those are two</p>	<p style="text-align: right;">Page 99</p> <p>1 manage-in-place option can be effective.</p> <p>2 It just needs to include the components</p> <p>3 that I have stated in my rebuttal report.</p> <p>4 It needs to have stabilization of the</p> <p>5 ground surface, it needs to make sure</p> <p>6 that the tributary is no longer running</p> <p>7 through and within mine waste and running</p> <p>8 through in mine waste. It needs to</p> <p>9 account for the mine waste that's on the</p> <p>10 east side on that very steep slope going</p> <p>11 down into the Locust Fork, where it</p> <p>12 ravel down into the river. So it</p> <p>13 describes what I see as a complete</p> <p>14 program for restoration in place using a</p> <p>15 capping and draining philosophy, similar</p> <p>16 to the one that was employed at the --</p> <p>17 for the post-law area, as it's referred</p> <p>18 to.</p> <p>19 Q. Thank you for clarifying that.</p> <p>20 Do you believe there is any</p> <p>21 impact to the Locust Fork by any</p> <p>22 drainage, storm water, any groundwater</p> <p>23 migration or seepage, at all?</p>
<p style="text-align: right;">Page 98</p> <p>1 conceptual-level philosophies that could</p> <p>2 be applied, and both are applied in</p> <p>3 mining.</p> <p>4 Q. Okay. I understand your opinion</p> <p>5 as reflected throughout your reports to</p> <p>6 be that while the deforestation and</p> <p>7 excavation and eventual reclamation</p> <p>8 approach is not the only approach, that</p> <p>9 any manage-in-place option would not be</p> <p>10 sufficient?</p> <p>11 A. No, that's not true.</p> <p>12 Q. Okay. Please explain to me what</p> <p>13 it is, what your opinion is.</p> <p>14 A. First of all, because we need to</p> <p>15 stabilize the ground surface to prevent</p> <p>16 erosion, which I see as the most</p> <p>17 significant challenge at Maxine, clearing</p> <p>18 would be required. So clearing the trees</p> <p>19 to prepare the ground surface, just like</p> <p>20 it was required when the pile was put</p> <p>21 there in the first place.</p> <p>22 There is a possibility -- or as</p> <p>23 I said in my rebuttal report, the</p>	<p style="text-align: right;">Page 100</p> <p>1 A. Absolutely.</p> <p>2 Q. All right. What impact do you</p> <p>3 believe exists?</p> <p>4 A. There's three forms of impact</p> <p>5 that occur in a number of areas.</p> <p>6 Q. Okay.</p> <p>7 A. The first is that the mine waste</p> <p>8 is eroded, is being eroded and is being</p> <p>9 transported I think I used the word</p> <p>10 unabated, meaning there's no controls in</p> <p>11 place to prevent it from happening. It</p> <p>12 continues to happen. And that mine waste</p> <p>13 is being deposited in the Locust Fork,</p> <p>14 and you can see it with ERT, and you can</p> <p>15 see it with the sampling that's been</p> <p>16 done.</p> <p>17 And the Tributary 1, when it</p> <p>18 flows, contains dissolved contamination,</p> <p>19 pollution as well, primarily in the form</p> <p>20 of heavy metals dissolved into the water</p> <p>21 and low pH, high acidity. And similar to</p> <p>22 the surface water, the groundwater seeps</p> <p>23 into the Locust Fork on a continuous</p>



<p style="text-align: right;">Page 101</p> <p>1 basis. And it contains high acidity and</p> <p>2 high concentrations of dissolved heavy</p> <p>3 metals.</p> <p>4 So those three ways.</p> <p>5 Q. Okay. All right. Let me ask</p> <p>6 you about each of those in turn. Is the</p> <p>7 ERT that you are indicating shows the</p> <p>8 erosion continuing unabated, the</p> <p>9 river-based ERT work that was done on</p> <p>10 August 19, 2017, by the Advisian folks</p> <p>11 and on behalf of Mr. Brown?</p> <p>12 A. Correct. It shows the</p> <p>13 accumulation. You interpret geophysics.</p> <p>14 Q. Okay.</p> <p>15 A. So the interpretation is that</p> <p>16 the surface adjacent to the outlet or the</p> <p>17 confluence of Tributary 1 and Locust</p> <p>18 Fork, the bottom surface is covered with</p> <p>19 mine waste.</p> <p>20 Q. Okay.</p> <p>21 A. And that's a reasonable</p> <p>22 deduction based on the flow direction and</p> <p>23 the erosion and sediment transport that's</p>	<p style="text-align: right;">Page 103</p> <p>1 A. I've read the transcript, draft</p> <p>2 transcript from Dr. Dimova.</p> <p>3 Q. Okay. Have you read any other</p> <p>4 depositions?</p> <p>5 A. No.</p> <p>6 Q. Okay. Why did you read Dr.</p> <p>7 Dimova's deposition?</p> <p>8 A. Because it was provided to me.</p> <p>9 Q. Okay. Do you recall Dr. Dimova</p> <p>10 testifying about the source of what she</p> <p>11 described as gravel or GOB?</p> <p>12 A. It was clear to me that she used</p> <p>13 the term "not natural." The -- we've</p> <p>14 never met, so.</p> <p>15 Q. That's not part of the question.</p> <p>16 A. No, I know. But it's part of my</p> <p>17 answer. So I don't know if the way she</p> <p>18 would be using terms would be consistent</p> <p>19 with the way I would use terms. And</p> <p>20 because, clearly, all materials in the</p> <p>21 world are natural, there's not -- well, I</p> <p>22 guess all rock materials. We make</p> <p>23 chemicals from that. But all of the</p>
<p style="text-align: right;">Page 102</p> <p>1 clearly evident in the lower portions of</p> <p>2 that tributary.</p> <p>3 Q. Okay.</p> <p>4 A. The additional work was done by</p> <p>5 Dimova that essentially replicates the</p> <p>6 ERT signature. But it also included</p> <p>7 sampling that, you know, all of the</p> <p>8 parameters that she sampled for are</p> <p>9 consistent with the ones that are in the</p> <p>10 mine waste: concentrations of arsenic,</p> <p>11 concentrations of iron, size</p> <p>12 distributions, those sorts of things.</p> <p>13 Q. Are you aware that Dr. Dimova</p> <p>14 testified that she could not state the</p> <p>15 source of what she called gravel but was</p> <p>16 told was GOB in the river?</p> <p>17 MR. BROCK: I'll object to the</p> <p>18 form of the question, to the</p> <p>19 characterization of her testimony.</p> <p>20 MR. DAVIS: I agree the</p> <p>21 testimony speaks for itself.</p> <p>22 Q. But are you aware of what Dr.</p> <p>23 Dimova testified on the issue?</p>	<p style="text-align: right;">Page 104</p> <p>1 substances we're talking about are</p> <p>2 natural. I would interpret from what she</p> <p>3 said is that the materials that she</p> <p>4 sampled didn't conform with what she</p> <p>5 would have expected to be a natural river</p> <p>6 bottom in the Locust Fork.</p> <p>7 Q. Okay.</p> <p>8 A. That's what I gleaned from her</p> <p>9 testimony.</p> <p>10 Q. I understand. Thank you for</p> <p>11 your answer. We would agree that Dr.</p> <p>12 Dimova's words speak for themselves,</p> <p>13 though; right?</p> <p>14 A. Fine.</p> <p>15 MR. BROCK: We agree she was not</p> <p>16 asked to make an assessment or to make</p> <p>17 that connection. As she testified.</p> <p>18 MR. DAVIS: Okay. I think we</p> <p>19 agree that her testimony is her</p> <p>20 testimony.</p> <p>21 Q. You don't have to answer. It's</p> <p>22 not really a question.</p> <p>23 Okay Let's talk now about the</p>

<p style="text-align: right;">Page 105</p> <p>1 sampling. I'm just trying to make sure I</p> <p>2 understand what underlies each of your</p> <p>3 answers. You've explained the ERT aspect</p> <p>4 of your statement that the erosion</p> <p>5 continues unabated. You also included</p> <p>6 sampling as part of your basis for the</p> <p>7 erosion unabated opinion.</p> <p>8       So my question here is, what</p> <p>9 sampling specifically do you have</p> <p>10 reference to?</p> <p>11       A. So I won't -- the basis of your</p> <p>12 question wasn't quite right.</p> <p>13       Q. Okay.</p> <p>14       A. So.</p> <p>15       Q. Tell me what --</p> <p>16       A. I'll try to clarify what I</p> <p>17 earlier said.</p> <p>18       Q. Okay.</p> <p>19       A. Because I don't think I came</p> <p>20 across correctly.</p> <p>21       Q. All right.</p> <p>22       A. My opinion of the erosion</p> <p>23 continuing unabated is not the result of</p>	<p style="text-align: right;">Page 107</p> <p>1 supported by the sampling that was done</p> <p>2 by Dimova that verified that it has the</p> <p>3 same chemical characteristics, the same</p> <p>4 composition as the mine waste.</p> <p>5       Q. Okay. Thank you.</p> <p>6       A. So -- so.</p> <p>7       Q. Please continue.</p> <p>8       A. No. That answers. That's the</p> <p>9 premise. So perhaps you could ask the</p> <p>10 question again. Because the premise of</p> <p>11 your question was.</p> <p>12       Q. Well, I think you've clarified</p> <p>13 your statement, and I don't have any</p> <p>14 further question.</p> <p>15       A. Okay.</p> <p>16       Q. Thank you for the clarification.</p> <p>17       All right. And you had -- that</p> <p>18 helps me with the follow-up. You had an</p> <p>19 opinion about the surface water. Can you</p> <p>20 tell me once again so we're clear what</p> <p>21 that is and explain the basis for it.</p> <p>22       A. The surface water where? Sorry.</p> <p>23 To clarify.</p>
<p style="text-align: right;">Page 106</p> <p>1 the sampling or the ERT.</p> <p>2       Q. Okay.</p> <p>3       A. It is from observing the erosion</p> <p>4 in the GOB pile, the evidence of erosion,</p> <p>5 observing that sediment has completely</p> <p>6 filled and overwhelmed the former basins</p> <p>7 and dams, and therefore, those, those</p> <p>8 structures are no longer functional, and</p> <p>9 there is nothing to stop erosion</p> <p>10 tomorrow, for example, from occurring and</p> <p>11 transporting the mine waste into the</p> <p>12 Locust Fork.</p> <p>13       So that's the basis of my</p> <p>14 conclusion that erosion is continuing</p> <p>15 unabated.</p> <p>16       Now, I've looked at the ERT data</p> <p>17 in the river, both the Dimova report,</p> <p>18 that included in the Dr. Dimova report</p> <p>19 and that completed at the time I was at</p> <p>20 the site, as providing evidence that the</p> <p>21 mine waste is accumulating and has</p> <p>22 accumulated in the Locust Fork. And that</p> <p>23 ERT interpretation was subsequently</p>	<p style="text-align: right;">Page 108</p> <p>1       Q. Well, I'm just trying to get the</p> <p>2 answer. You said that you had, I</p> <p>3 believe, there was evidence of impact to</p> <p>4 the Locust Fork and the Black Warrior</p> <p>5 River from water and/or GOB from the</p> <p>6 Maxine Mine site. You've now told us --</p> <p>7       A. -- about the GOB.</p> <p>8       Q. -- about the GOB, about the</p> <p>9 erosion. So now I'm trying to get to the</p> <p>10 surface water and groundwater components</p> <p>11 of that opinion and what the basis for</p> <p>12 each is. Does that help?</p> <p>13       A. Yes.</p> <p>14       Q. Okay.</p> <p>15       A. So the basis of the opinion on</p> <p>16 surface water is observations that I've</p> <p>17 made during my site inspection where I</p> <p>18 could see the surface water in Tributary</p> <p>19 1 was acidic. The flows that were</p> <p>20 occurring in Tributary 1 were acidic. I</p> <p>21 realize you're asking me about the Locust</p> <p>22 Fork. But the Tributary 1 drains into</p> <p>23 the Locust Fork, so at the point where</p>

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1 that water drained into the Locust Fork,  
2 you could see the acidic water from  
3 Tributary 1.  
4 There were also places along the  
5 west bank of the Locust Fork upstream of  
6 that Tributary 1 confluence but where  
7 mine waste had ravelled down the hill, so  
8 to speak, accumulated on the banks of the  
9 Locust Fork, and there was also surface  
10 water percolating through that material.  
11 It was clearly acidic, and it was  
12 draining into the Locust Fork.  
13 Q. Okay. Now, I want to make sure  
14 that I understand what you're saying.  
15 You're saying that you could see that the  
16 water was acidic. Is the visual evidence  
17 of that the characteristics that you've  
18 previously described?  
19 A. Correct.  
20 Q. Okay.  
21 A. And -- and then subsequent  
22 sampling corroborated that.  
23 Q. Okay.

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1 A. Visual impression.  
2 Q. All right. Anything else on the  
3 surface water portion of that?  
4 A. No.  
5 Q. Now, how about groundwater?  
6 A. Groundwater, specifically with  
7 regard to releases to the Locust Fork,  
8 was evident to me at the -- downstream of  
9 that lower dam, where a fairly high  
10 proportion of the water that's seeping  
11 into the Locust Fork is groundwater  
12 seepage.  
13 Q. All right.  
14 A. So it commingles with the --  
15 with the surface water. But because the  
16 materials are granular and permeable  
17 throughout the full depth, you can  
18 reasonably conclude that that seepage of  
19 groundwater is occurring beneath the  
20 water level of the Locust Fork.  
21 Q. Okay. What evidence of  
22 groundwater seepage did you see?  
23 A. What I just said is the -- the

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1 seepage that's occurring downgradient of  
2 the lower dam. In addition to that,  
3 there's places along Tributary 1 where  
4 groundwater is seeping out of the GOB  
5 pile into Tributary 1 groundwater and  
6 becoming surface water. And there's also  
7 evidence of groundwater seepage, smaller  
8 areas along the west bank upstream of the  
9 Tributary 1 confluence.  
10 Q. Okay. Now, with regard to the  
11 seepage below the dam, I understand that  
12 you're saying that it exists. What I'm  
13 trying to understand is -- and maybe  
14 we're talking about two different places.  
15 I'm understanding you to be talking about  
16 groundwater coming out below the dam  
17 right at the river, what sometimes has  
18 been referred to as Dam 1, as the dam at  
19 the river, and various --  
20 A. Yeah, lower dam is what I would  
21 say.  
22 Q. Lower dam, okay. Is there  
23 evidence of groundwater seepage there?

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1 A. Yes. And so --  
2 Q. Okay. How do we know -- I just  
3 want to know what you're talking about,  
4 what the --  
5 A. Yeah. So the observational  
6 evidence is below the dam you could see  
7 water seeping out of the ground above the  
8 level of the Locust Fork. The materials  
9 continue to be permeable beneath that  
10 level, which you can't see because it's  
11 below the water level. But one can  
12 reasonably deduce that that seepage is  
13 occurring. And it's also supported by  
14 the ERT data that shows that that zone of  
15 impact continues two or three meters  
16 below ground surface at a level lower  
17 than the Locust Fork. So that's an  
18 interpretive element to yes, this is the  
19 evidence that the groundwater is seeping  
20 into the Locust Fork.  
21 Q. Okay. Now, with regard to the  
22 upstream of the lower dam, back up  
23 Tributary 1, as Riverkeeper calls it, you

<p style="text-align: right;">Page 113</p> <p>1 referenced seepage out of the GOB. Did  2 you also see any seepage out of bedrock?  3 A. Not that I recall.  4 Q. Do you know whether what you saw  5 that you attribute to be seepage out of  6 the GOB pile is actually out of bedrock?  7 A. I would think that it isn't.  8 The ground surface and the bedrock are  9 relatively impermeable. The mine waste  10 is relatively permeable. So the location  11 where groundwater tends to accumulate is  12 immediately above that permeability  13 contrast above the lower permeable -- the  14 lower layer, lower impermeable layer,  15 which is the bedrock and natural soils,  16 and above within the mine waste.  17 And this is the same conclusion  18 that the folks -- that PELA made when  19 they were doing their initial groundwater  20 investigations in the post-law and  21 pre-law areas, as they referred to it.  22 Q. Okay. All right. If you will,  23 please, look on page 1.1 of your October</p>	<p style="text-align: right;">Page 115</p> <p>1 In the course of reviewing materials and  2 making your site observations during your  3 site visit and reviewing the data  4 collected through the sampling and  5 analysis, be it soil, water in the river,  6 surface water at the site, did you reach  7 any opinions that were not supportive of  8 claims you understand to be being made by  9 the plaintiff, Riverkeeper, in the case?  10 A. I think the answer to that  11 question is no. It's a long question. I  12 think I understand.  13 Q. I understand.  14 A. The --  15 MR. BROCK: You answered the  16 question. Let him ask another one.  17 THE WITNESS: Okay.  18 Q. He wants me to work for my --  19 MR. BROCK: When you say, "The  20 answer is no," that's the end of the  21 answer.  22 Q. Yeah. And if it makes you feel  23 better, we go through this with every</p>
<p style="text-align: right;">Page 114</p> <p>1 2017 report. This is -- it continues to  2 be Exhibit 3. All right. You obviously  3 understand, based on your introduction,  4 that Riverkeeper is bringing claims under  5 the Clean Water Act and the Resource  6 Conservation and Recovery Act; right?  7 A. That's what I understand.  8 Q. Okay. What is your  9 understanding -- and I'm not asking you  10 for a legal opinion, just your personal  11 understanding -- of what the Clean Water  12 Act claim or claims are?  13 A. My understanding is that the  14 claim is that pollutants are being  15 discharged into the waters of the United  16 States. I think there's an acronym to  17 that effect.  18 Q. Okay. All right. And what do  19 you understand to be the claim under the  20 Resource Conservation and Recovery Act?  21 A. Similar. "I don't know" is the  22 answer to your question.  23 Q. Okay. Fair enough. All right</p>	<p style="text-align: right;">Page 116</p> <p>1 witness on both sides of the aisle.  2 A. My only hesitance was I was  3 going ask for it to be repeated. I  4 wasn't going to --  5 MR. DAVIS: Will you repeat the  6 question for the witness?  7 A. Because I want to make sure I  8 fully understood it.  9 (Requested portion read.)  10 A. Yeah. I'm staying with my  11 answer. Thanks.  12 Q. Okay. Yeah.  13 MR. BROCK: Off the record.  14 (Break taken.)  15 Q. (By Mr. Davis) All right. I  16 understand from your report, Mr. Johnson,  17 that your rate for your report  18 preparation is \$200 an hour; right?  19 A. Yes.  20 Q. \$400 an hour for depositions and  21 trials; correct?  22 A. Correct.  23 Q. All right. Do you charge the</p>

<p style="text-align: right;">Page 117</p> <p>1 same hourly rate of \$200 an hour for  2 field work, like the site visit, or was  3 that another?  4 A. For the work that I've done on  5 this project.  6 Q. Okay.  7 A. Yes.  8 Q. All right. You haven't  9 testified in trial or in an  10 administrative hearing or a deposition in  11 the past four years?  12 A. Correct.  13 Q. Okay. All right. Do you have  14 an estimate of how many hours you have  15 spent working on this case? And by that  16 I mean total. You know, site visit,  17 anything that you've billed Riverkeeper  18 for.  19 A. My estimate would be less than  20 200 hours but close to 200 hours.  21 Q. Okay. All right. If you will,  22 please, look at page 3.1 under "Project  23 Introduction" and the heading, "3.1</p>	<p style="text-align: right;">Page 119</p> <p>1 the list; right? The list of what the  2 contamination includes?  3 A. Is that a question? Sorry, yes.  4 Q. It was intended to be, but. Let  5 me make sure it's a specific question.  6 The contamination that you are  7 speaking of includes, as your last  8 sentence indicates, acidic water, TDS,  9 high metals concentration, "relative to  10 relevant water quality standards and  11 background concentrations." Right?  12 A. Correct.  13 Q. What are the relevant water  14 quality standards?  15 A. I relied on aquilologic to  16 evaluate -- to determine those.  17 Q. All right. If aquilologic is  18 incorrect about the relevant water  19 quality standards, then would any  20 conclusion that you have that's based on  21 those aquilologic decisions --  22 A. Specific -- oh, sorry.  23 Q. -- also be incorrect?</p>
<p style="text-align: right;">Page 118</p> <p>1 Background." And looking at the second  2 sentence in the second paragraph and  3 specifically at the word "flowing,"  4 "Surface and ground water contaminated by  5 the GOB Pile is flowing into the Locust  6 Fork." Now, I interpret the word  7 "flowing" to mean a constant flow. Is  8 that how you intend it to be used?  9 A. It was flowing the day I was at  10 the site. And I believe in my report I  11 referred to it as an intermittent stream.  12 So the implication there is that it  13 doesn't flow on a continuous basis.  14 Q. All right. And with regard to  15 the phrase "contaminated by the GOB  16 Pile," what is the contamination?  17 A. The contamination is the  18 suspended sediments that consist of the  19 mine waste, the acidity, and then the  20 high concentrations of some of the heavy  21 metals.  22 Q. Okay. I see that's how you  23 conclude the paragraph, so that would be</p>	<p style="text-align: right;">Page 120</p> <p>1 A. Specific conclusions regarding  2 the specific errors would change. But  3 the restoration strategy and  4 recommendations wouldn't.  5 Q. Would not? Okay. All right.  6 And there's also a reference to, at the  7 end of your sentence to background  8 concentrations. What are the background  9 concentrations that you have reference  10 to?  11 A. The background concentrations  12 refer to perhaps water in the Locust Fork  13 upstream of the points -- specifically in  14 my report, more specifically, we  15 evaluated the concentrations of some of  16 the metals relative to background  17 concentrations published for this area of  18 Alabama.  19 Q. Okay. And those background  20 concentrations are referenced  21 specifically in your report; right?  22 A. Correct.  23 Q. Okay. All right. If you will</p>



<p style="text-align: right;">Page 121</p> <p>1 --</p> <p>2 A. Just to clarify that last</p> <p>3 answer.</p> <p>4 Q. Certainly.</p> <p>5 A. They're also referenced in other</p> <p>6 experts' reports.</p> <p>7 Q. Okay.</p> <p>8 A. So for example, the background</p> <p>9 water quality in the Locust Fork is not</p> <p>10 referenced in my report, but it is</p> <p>11 referenced in other experts' reports.</p> <p>12 Q. And you in turn cite those</p> <p>13 reports --</p> <p>14 A. Yes.</p> <p>15 Q. -- as part of yours? Okay. I</p> <p>16 understand you.</p> <p>17 All right. The third paragraph,</p> <p>18 I understand the first sentence to mean</p> <p>19 that the mine waste that comprises the</p> <p>20 GOB pile is the source of the</p> <p>21 contamination that you've described</p> <p>22 above; right?</p> <p>23 A. Yes.</p>	<p style="text-align: right;">Page 123</p> <p>1 A. My experience, my understanding</p> <p>2 of mine rules and mine waste management</p> <p>3 rules in a general sense.</p> <p>4 Q. Okay. What of your experience</p> <p>5 informs your judgment there?</p> <p>6 A. Every mine site that I've ever</p> <p>7 worked on had a requirement to manage the</p> <p>8 mine waste such that it didn't have an</p> <p>9 adverse effect on the waters that were</p> <p>10 released from it.</p> <p>11 Q. Okay. But you've told us that</p> <p>12 the only site in Alabama you've worked on</p> <p>13 is the Maxine site; correct?</p> <p>14 A. Correct.</p> <p>15 Q. All right. What mine rules do</p> <p>16 you have reference to?</p> <p>17 A. Mine rules in general? Sorry.</p> <p>18 I want to understand your question.</p> <p>19 Q. Yeah. I thought that was part</p> <p>20 of your answer. You mentioned experience</p> <p>21 and mine rules.</p> <p>22 A. So in the context of my answer.</p> <p>23 Q. Yes.</p>
<p style="text-align: right;">Page 122</p> <p>1 Q. All right. And once again, just</p> <p>2 so the record is clear, the mine waste is</p> <p>3 the geologic overburden, the rock,</p> <p>4 minerals, the coal fragments to the</p> <p>5 extent they were not removed, water,</p> <p>6 perhaps some vegetative material of some</p> <p>7 kind?</p> <p>8 A. Yes. I didn't see vegetative</p> <p>9 material --</p> <p>10 Q. Okay.</p> <p>11 A. -- in the mine waste, but that's</p> <p>12 possible.</p> <p>13 Q. Okay. But that's what it</p> <p>14 consists of.</p> <p>15 All right. Your next sentence</p> <p>16 in that paragraph speaks of a failure to</p> <p>17 properly manage the GOB pile. Is it your</p> <p>18 belief that there was a legal duty on the</p> <p>19 part of ABC or Drummond to manage the GOB</p> <p>20 pile?</p> <p>21 A. That would be my belief, yes.</p> <p>22 Q. All right. What is that based</p> <p>23 on?</p>	<p style="text-align: right;">Page 124</p> <p>1 A. Yes.</p> <p>2 Q. That's what I'm asking about.</p> <p>3 A. The mine rules that I'm most</p> <p>4 familiar with are in western Canada,</p> <p>5 where I've done most of my work.</p> <p>6 Q. Okay. Look for me under section</p> <p>7 3.2 in the second paragraph. And I'm</p> <p>8 looking at the second sentence, which</p> <p>9 references "the results of a sampling and</p> <p>10 analytical program that was completed by</p> <p>11 Burgess Environmental as part of a more</p> <p>12 detailed investigation" by aquilogic.</p> <p>13 What exactly is the program that</p> <p>14 was completed by Burgess Environmental?</p> <p>15 A. The sampling of the mine waste</p> <p>16 at various locations throughout the GOB</p> <p>17 pile.</p> <p>18 Q. Soil sampling?</p> <p>19 A. Mine waste sampling.</p> <p>20 Q. Okay. Where is that sampling</p> <p>21 reflected?</p> <p>22 A. There's ten sample locations</p> <p>23 that are shown on a figure. I'll find it</p>



<p style="text-align: right;">Page 125</p> <p>1 for you if you like.  2 Q. Okay.  3 A. 5.1, I think, but.  4 Q. Is it perhaps 5.4?  5 A. 5.4, yes.  6 Q. All right. All right. And  7 these -- 5.4 is labeled, or is titled  8 "Mine Waste, Groundwater and Surface  9 Water Sampling Locations." Are the mine  10 waste sampling locations indicated on  11 your Figure 5.4 the same soil boring  12 samples that are reflected in a similar  13 figure in the aquilogic report?  14 A. I believe so.  15 Q. Here's what I'm trying to make  16 sure I understand. I want to make sure  17 that we know what soil samplings and mine  18 waste samplings were taken. And if there  19 are more than are reflected on 5.4 --  20 that's my question. Are there any other  21 soil or mine waste samples that were  22 taken other than what are reflected on  23 Figure 5.4?</p>	<p style="text-align: right;">Page 127</p> <p>1 you will on page 3-2, still on section  2 3.2. All right. The last full paragraph  3 of section 3., 2 second sentence. "The  4 program for removal is developed in  5 sufficient detail below to validate  6 methodology and the viability of this  7 restoration option."  8 Did I read that correctly?  9 A. Yes.  10 Q. All right. I understand that  11 the elaboration follows. What I want to  12 focus on here and make sure I understand  13 is the word "validate." How does the --  14 how is your program for removal validated  15 by what follows in your report? Or let  16 me strike that question and start again.  17 What do you mean by the word  18 "validate" in that statement?  19 A. What I mean by that is that I'm  20 proposing a restoration option that is  21 viable to implement.  22 Q. And what makes it viable to  23 implement?</p>
<p style="text-align: right;">Page 126</p> <p>1 A. To my knowledge, no, and not by  2 me.  3 Q. Okay. And would the ones that  4 are reflected on Figure 5.4 to your  5 October 2017 report be the ones that were  6 taken during joint sampling events in  7 August 2018?  8 A. Yes.  9 Q. Okay.  10 MR. BROCK: I think it's 2017.  11 THE WITNESS: Sorry. Yes.  12 MR. DAVIS: What did I say?  13 MR. BROCK: You said '18.  14 MR. DAVIS: I'm sorry. Yeah.  15 Thank you for correcting me. We've got  16 to have a good record or it will be very  17 confusing, so thank you very much.  18 Q. (By Mr. Davis) Okay. Any other  19 component to the sampling and analytical  20 program that was completed by Burgess  21 Environmental?  22 A. No.  23 Q. Okay. All right look for me if</p>	<p style="text-align: right;">Page 128</p> <p>1 A. Well, complete removal is one  2 that is I would say fairly  3 straightforward and easy to conceive and  4 can be achieved. So in that sense, in my  5 opinion, it is viable.  6 Q. Have you done any analysis with  7 regard to whether it is legally  8 permissible to implement the option that  9 you proposed, or are you leaving that to  10 the lawyers for Black Warrior  11 Riverkeeper?  12 A. I wouldn't leave it to the  13 lawyers of Black -- the Riverkeeper and  14 SCLC. But in the places that I've  15 worked, it's -- and there's been many of  16 them, the removal option is typically  17 preferred by the regulators. And it's  18 been approvable. So it's not a  19 restoration strategy that in my mind  20 would be prevented. Or in my experience,  21 probably is a better way of putting it.  22 Q. On any site that you've worked  23 on in the United States, has any</p>

<p style="text-align: right;">Page 129</p> <p>1 regulatory entity approved the</p> <p>2 deforestation of 175 acres and authorized</p> <p>3 the removal of two million cubic yards of</p> <p>4 material?</p> <p>5 A. I have not worked on a job with</p> <p>6 exactly this -- those criteria that you</p> <p>7 just established, or you just stated.</p> <p>8 I've never seen clearing be an impediment</p> <p>9 to any of the restoration strategies that</p> <p>10 I've proposed.</p> <p>11 Q. It's your understanding that</p> <p>12 Black Warrior Riverkeeper is an</p> <p>13 organization that advocates</p> <p>14 deforestation?</p> <p>15 MR. BROCK: I object to the</p> <p>16 form.</p> <p>17 Q. Do you have an understanding?</p> <p>18 A. No.</p> <p>19 Q. Okay. What is your</p> <p>20 understanding of what the objectives as</p> <p>21 an organization of Black Warrior</p> <p>22 Riverkeeper are, if you have any?</p> <p>23 A. On this particular project,</p>	<p style="text-align: right;">Page 131</p> <p>1 activity. It occurs with forestry in</p> <p>2 Alabama, for example, on a fairly large</p> <p>3 scale.</p> <p>4 Q. Okay. Your testimony is that</p> <p>5 clear-cutting 175 acres is a minor</p> <p>6 detail. Is that correct?</p> <p>7 MR. BROCK: Object to the form.</p> <p>8 You can answer.</p> <p>9 THE WITNESS: Okay. I'm not</p> <p>10 sure what protocol is to whether I'm</p> <p>11 meant to answer when you --</p> <p>12 MR. BROCK: Yeah. I'm objecting</p> <p>13 to just some aspect of the question that</p> <p>14 I thought was improper. But you can go</p> <p>15 ahead and answer to the extent you</p> <p>16 understand it.</p> <p>17 A. You know, my experience -- or in</p> <p>18 my view, the clearing of this area is not</p> <p>19 a significant step that would result in</p> <p>20 adverse environmental impact. It's done</p> <p>21 by mining companies all the time when</p> <p>22 they're opening up areas. It's done by</p> <p>23 forest companies all the time. It's done</p>
<p style="text-align: right;">Page 130</p> <p>1 they've asked me to evaluate restoration</p> <p>2 options that would prevent the ongoing</p> <p>3 pollution of the Locust Fork. That seems</p> <p>4 to be -- or that, in my experience</p> <p>5 working with SELC and Riverkeeper, is</p> <p>6 their sole objective.</p> <p>7 Q. Okay. Do you know whether Black</p> <p>8 Warrior Riverkeeper advocates in favor of</p> <p>9 mining?</p> <p>10 A. I don't know.</p> <p>11 Q. Do you know whether Black</p> <p>12 Warrior Riverkeeper advocates</p> <p>13 clear-cutting of forest?</p> <p>14 A. The -- Riverkeeper had nothing</p> <p>15 to do with the restoration strategy that</p> <p>16 I'm proposing. The responsible</p> <p>17 management of this particular mine waste</p> <p>18 pile, the GOB pile, if it's going to be</p> <p>19 managed properly, as I've said in my</p> <p>20 report, will require the surface to be</p> <p>21 stabilized. And there's no way to</p> <p>22 stabilize it without clearing it. And</p> <p>23 clearing it is a relatively minor</p>	<p style="text-align: right;">Page 132</p> <p>1 by agricultural activities all of the</p> <p>2 time. And there's every reason to</p> <p>3 believe that after this is excavated and</p> <p>4 restored -- excavated and restored or</p> <p>5 capped in place and restored, that</p> <p>6 appropriate vegetation would reestablish.</p> <p>7 I mean, Alabama's an excellent place for</p> <p>8 reestablishing vegetation.</p> <p>9 Q. Okay. All right. What analysis</p> <p>10 have you done as to how long it would</p> <p>11 take to develop what you were describing</p> <p>12 as appropriate revegetation?</p> <p>13 A. In my experience -- this is not</p> <p>14 an analytical process but an</p> <p>15 experience-based process -- that it</p> <p>16 typically takes between one and three</p> <p>17 years to reestablish surface vegetation</p> <p>18 that's resistant of the erosion, which</p> <p>19 would be the objective here, and also to</p> <p>20 have natural vegetation. The local folks</p> <p>21 typically determine what the appropriate</p> <p>22 natural vegetation is. You don't want to</p> <p>23 reintroduce invasive species, that sort</p>

<p style="text-align: right;">Page 133</p> <p>1 of thing.</p> <p>2 Q. Okay. By "local folks," you</p> <p>3 would mean the regulatory entities having</p> <p>4 jurisdiction over the property and --</p> <p>5 A. Or an expert that would be</p> <p>6 retained by whomever is doing the work,</p> <p>7 yes.</p> <p>8 Q. Do you think any of the work</p> <p>9 that you are proposing could be done</p> <p>10 without the oversight and permission of</p> <p>11 whatever bodies of regulators have</p> <p>12 jurisdiction over the Maxine Mine</p> <p>13 property?</p> <p>14 A. Well, as I stated in my report,</p> <p>15 I recognize there's a regulatory step of</p> <p>16 presenting the plan to the regulators and</p> <p>17 then getting that plan accepted. And</p> <p>18 there would be a regulatory body, in my</p> <p>19 view, that would look after the mining</p> <p>20 aspects, the environmental aspects, and</p> <p>21 then the water aspects.</p> <p>22 Q. Okay. Do you acknowledge, then,</p> <p>23 that your deforestation and excavation</p>	<p style="text-align: right;">Page 135</p> <p>1 reestablished.</p> <p>2 Q. I'll circle back to my original</p> <p>3 question, which is, does Black Warrior</p> <p>4 Riverkeeper support mining? Does it</p> <p>5 advocate in favor of surface mining?</p> <p>6 A. Well, refer back to my previous</p> <p>7 answer. I don't know.</p> <p>8 MR. BROCK: You still don't</p> <p>9 know?</p> <p>10 THE WITNESS: No, I still don't</p> <p>11 know.</p> <p>12 MR. BROCK: Okay.</p> <p>13 Q. You should look at the website</p> <p>14 one time.</p> <p>15 MR. BROCK: Is there mining</p> <p>16 involved in the case? Anyway, go ahead.</p> <p>17 MR. DAVIS: I'm just trying to</p> <p>18 understand --</p> <p>19 A. I'm a bit of a dinosaur. I</p> <p>20 don't spend a lot of time surfing</p> <p>21 people's websites.</p> <p>22 Q. That's fine. And you're not</p> <p>23 required to, by any means. I'm just</p>
<p style="text-align: right;">Page 134</p> <p>1 plan as described in your reports of</p> <p>2 October 2017 and April 2018 would have to</p> <p>3 be approved by regulators?</p> <p>4 A. I'm not sure if clearing is</p> <p>5 something that gets approved by</p> <p>6 regulators. I've never used the term</p> <p>7 "deforestation." And I'm not sure why</p> <p>8 you're using it. But clearing the area</p> <p>9 would be a requirement of the work.</p> <p>10 Whether or not that is a regulated</p> <p>11 activity on its own right, I don't know.</p> <p>12 Q. What is the difference between</p> <p>13 clearing of a forest and deforestation?</p> <p>14 Is there some distinction?</p> <p>15 A. Well, there's certainly negative</p> <p>16 connotations and potentially permanent</p> <p>17 connotations behind deforestation. I</p> <p>18 just don't think they apply here.</p> <p>19 Q. Okay.</p> <p>20 A. You know. So I suspect, if you</p> <p>21 had a forestry client sitting next to</p> <p>22 you, they wouldn't appreciate the use of</p> <p>23 that term. Because the forest can be</p>	<p style="text-align: right;">Page 136</p> <p>1 trying to understand your report. And</p> <p>2 the distinction between clearing a site</p> <p>3 or removing the forest, which is what</p> <p>4 deforestation is, or trees seems to me to</p> <p>5 be something that's important to</p> <p>6 understand if you see a distinction. So</p> <p>7 that's what my questions are. I'm trying</p> <p>8 to understand what you mean by your</p> <p>9 proposal.</p> <p>10 Can we submit -- and by "we," I</p> <p>11 mean the parties to this case, can we</p> <p>12 submit your expert report, as it's</p> <p>13 titled, of October 2017 and your rebuttal</p> <p>14 report of April 2018 to whatever</p> <p>15 regulatory body has jurisdiction and get</p> <p>16 permission to undertake the work that you</p> <p>17 have prescribed?</p> <p>18 A. Well, my report was not intended</p> <p>19 for regulatory submission. So I would</p> <p>20 think that any plan, presumably the</p> <p>21 obligation of the proponent, would need</p> <p>22 to be more detailed and design-oriented</p> <p>23 --</p>

<p style="text-align: right;">Page 137</p> <p>1 Q. Okay.</p> <p>2 A. -- to achieve or obtain the</p> <p>3 regulatory acceptance. That would be my</p> <p>4 experience, and that would be my</p> <p>5 expectation.</p> <p>6 Q. Okay. I didn't quite hear part</p> <p>7 of the answer.</p> <p>8 MR. DAVIS: Can you read it back</p> <p>9 to me?</p> <p>10 (Requested portion read.)</p> <p>11 MR. DAVIS: Thank you.</p> <p>12 A. She's far more eloquent than the</p> <p>13 two of us.</p> <p>14 Q. I just do the best I can.</p> <p>15 You agree that substantiating</p> <p>16 your proposal would be the obligation of</p> <p>17 the proponent; right?</p> <p>18 A. Yes. Once a restoration</p> <p>19 strategy is finalized, it would need to</p> <p>20 be detailed and would be subject to</p> <p>21 regulatory acceptance. That would be my</p> <p>22 expectation.</p> <p>23 MR. DAVIS: All right. It's</p>	<p style="text-align: right;">Page 139</p> <p>1 photograph of the area, and the dashed</p> <p>2 red line is meant to portray the limits,</p> <p>3 as I understand them, of the area that</p> <p>4 was capped in the '80.</p> <p>5 Q. Okay. Is this a figure that you</p> <p>6 prepared? Or is this in the Brown</p> <p>7 report?</p> <p>8 A. I think that Brown gave me the</p> <p>9 limits.</p> <p>10 Q. Okay.</p> <p>11 A. It was -- there are also</p> <p>12 documents in the record that were</p> <p>13 produced by ABC that showed it. But I</p> <p>14 believe that particular depiction is from</p> <p>15 Brown.</p> <p>16 Q. Okay. Your Figure 4-2 is in Mr.</p> <p>17 Brown's report, or he made the image for</p> <p>18 you? And I'm just trying to figure out</p> <p>19 how you got this and whether you did</p> <p>20 anything to it yourself.</p> <p>21 A. I didn't do anything to it. The</p> <p>22 boundary was one that I got from</p> <p>23 aquilogic.</p>
<p style="text-align: right;">Page 138</p> <p>1 noon. Would you like to take a lunch</p> <p>2 break?</p> <p>3 MR. BROCK: Yes.</p> <p>4 (Break taken.)</p> <p>5 Q. (By Mr. Davis) Okay, Mr.</p> <p>6 Johnson. We'll continue on with your</p> <p>7 deposition. Will you continue to look</p> <p>8 with me at Exhibit 3, which is your</p> <p>9 October 2017 report, and I am moving into</p> <p>10 the figures now, and I have some</p> <p>11 questions on those.</p> <p>12 And I don't have a page number</p> <p>13 for you. The last page number I have is</p> <p>14 4-5. Okay. It appears that we're on the</p> <p>15 same page. I'm looking at Figure 4-1.</p> <p>16 A. Correct.</p> <p>17 Q. Okay. Is your Figure 4-1 a</p> <p>18 reproduction of a figure in the Anthony</p> <p>19 Brown report?</p> <p>20 A. Yes.</p> <p>21 Q. Okay. And let's look at Figure</p> <p>22 4-2. What does Figure 4-2 show us?</p> <p>23 A. It's a historical aerial</p>	<p style="text-align: right;">Page 140</p> <p>1 Q. All right. Now Figure 4-3.</p> <p>2 What are we looking at here?</p> <p>3 A. 4-3, I think this is an image</p> <p>4 that was in one of the topographic maps</p> <p>5 that we had in the record that showed the</p> <p>6 dump outline schematically.</p> <p>7 Q. Okay. And when you -- what do</p> <p>8 you understand to be the source of the</p> <p>9 USGS map?</p> <p>10 A. Just that USGS map, '75.</p> <p>11 Q. Okay. That was not a very good</p> <p>12 question. Let me try again.</p> <p>13 A. Okay.</p> <p>14 Q. You made a reference to this was</p> <p>15 a map in the record or something to that</p> <p>16 effect. So I understand that it's a USGS</p> <p>17 map, vintage 1975. Where did you get</p> <p>18 this figure?</p> <p>19 A. I don't recall exactly, but I</p> <p>20 believe it was the -- in the records that</p> <p>21 were shared with me by Riverkeeper and</p> <p>22 SELC.</p> <p>23 Q. Okay. Did you make Figure 4-3</p>

Page 141	<p>1 or did Mr. Brown?</p> <p>2 A. The red dashed lines there, I</p> <p>3 would have added to the document.</p> <p>4 Q. Okay. So Figure 4-3 is --</p> <p>5 A. The only thing new on that, the</p> <p>6 only thing created for this report on</p> <p>7 that is the dashed red line.</p> <p>8 Q. Dashed line?</p> <p>9 A. Otherwise, it's an exact</p> <p>10 duplicate of the USGS.</p> <p>11 Q. Okay. Thank you. All right.</p> <p>12 Figure 4-4 says "(Drummond, 1982)," but</p> <p>13 I'm guessing that perhaps this is an ABC</p> <p>14 document?</p> <p>15 A. Correct, yes.</p> <p>16 Q. Okay. What is the significance</p> <p>17 of Figure 4-4 to you?</p> <p>18 A. It's simply intended to provide</p> <p>19 background information on the geologic</p> <p>20 profile in the area.</p> <p>21 Q. Okay.</p> <p>22 A. And it was taken from one of</p> <p>23 those ABC reports. It might have been in</p>	Page 143	<p>1 was generated in the same way as the</p> <p>2 previous one. And it's intended to</p> <p>3 support my overview of the background</p> <p>4 hydrogeology within the bedrock unit</p> <p>5 that's reported -- or included in my</p> <p>6 report.</p> <p>7 Q. Okay. On each of 4-4 and 4-5,</p> <p>8 at the bottom of the page, there is the</p> <p>9 apparent abbreviation "DRN. BY," and then</p> <p>10 what I presume to be initials, "CEK."</p> <p>11 Does that mean "Drawn by"?</p> <p>12 A. Yes. Individual by the name of</p> <p>13 Charles Kreutzweiser.</p> <p>14 Q. Okay. Is he an employee of</p> <p>15 Burgess Environmental?</p> <p>16 A. No. He's a contract draftsman</p> <p>17 that I use.</p> <p>18 Q. Okay. The next block, the</p> <p>19 adjacent block, "APP'D BY: GJ," does that</p> <p>20 indicate approved by you?</p> <p>21 A. Yes.</p> <p>22 Q. Okay. And that's true on both</p> <p>23 documents; right?</p>
Page 142	<p>1 the section that was generated by PELA.</p> <p>2 Q. Okay.</p> <p>3 A. But in this case, we needed to</p> <p>4 redraft it because the clarity didn't</p> <p>5 come across. But it's intended to be an</p> <p>6 exact duplication of what's in their</p> <p>7 document.</p> <p>8 Q. Okay. And when you say</p> <p>9 redrafted, what do you mean?</p> <p>10 A. I mean we had -- we had to redo</p> <p>11 the labels and redo the image in AutoCAD</p> <p>12 to make it legible.</p> <p>13 Q. Okay. It was not a very good</p> <p>14 copy? Is that --</p> <p>15 A. Yeah, correct. Couldn't be</p> <p>16 photocopied and continue to be legible.</p> <p>17 Q. All right. All right. If</p> <p>18 you'll look at Figure 4-5, please, and</p> <p>19 tell us what we are looking at here and</p> <p>20 what the significance of it is to you.</p> <p>21 A. There was a section in my</p> <p>22 report -- first of all, what you're</p> <p>23 looking at is a lithologic profile that</p>	Page 144	<p>1 A. Yes.</p> <p>2 Q. All right.</p> <p>3 Okay. With regard to the</p> <p>4 section on site inspection, which is 5.1.</p> <p>5 And it begins on and ends on page 5-1,</p> <p>6 and it's titled "Site Inspection." You</p> <p>7 with me there?</p> <p>8 A. Yes.</p> <p>9 Q. Does that section describe the</p> <p>10 entire extent of the site inspection on</p> <p>11 which your opinions in your report are</p> <p>12 based?</p> <p>13 A. It summarizes the primary</p> <p>14 elements. It's not intended to be an</p> <p>15 exhaustive discussion of all of the</p> <p>16 things I saw and did on that day.</p> <p>17 Q. Okay. Are there --</p> <p>18 A. It would be the primary elements</p> <p>19 from which I have relied upon.</p> <p>20 Q. Okay. What is missing?</p> <p>21 A. Of all the activities that</p> <p>22 occurred that day or my observations.</p> <p>23 Q. Anything pertinent to the site</p>



<p style="text-align: right;">Page 145</p> <p>1 inspection?</p> <p>2 A. I don't think there's anything</p> <p>3 missing that's consequential to my</p> <p>4 recommendation for restoration.</p> <p>5 Q. Okay.</p> <p>6 A. But having said that, you know,</p> <p>7 I would have made observations around the</p> <p>8 entire GOB pile, and not all of them are</p> <p>9 documented here.</p> <p>10 Q. Okay.</p> <p>11 A. An example might be the seepages</p> <p>12 that I saw around the site. I don't see</p> <p>13 them described in any detail here. That</p> <p>14 would be an example of something that's</p> <p>15 discussed in other places in my report</p> <p>16 but not here.</p> <p>17 Q. Okay. And why would it not be</p> <p>18 discussed in this section of your report?</p> <p>19 A. I tried to keep this section of</p> <p>20 the report focused on the primary</p> <p>21 elements that led me to my recommendation</p> <p>22 for restoration.</p> <p>23 Q. Okay. Would it be fair to</p>	<p style="text-align: right;">Page 147</p> <p>1 the more -- some of the analytical-based</p> <p>2 information that supported my</p> <p>3 conclusions. So it's meant to focus on</p> <p>4 the primary elements that are</p> <p>5 observational.</p> <p>6 Q. Okay. All right. Was there</p> <p>7 anything else you wanted to say?</p> <p>8 A. No.</p> <p>9 Q. Okay. Let's move on to the next</p> <p>10 page, to section 5.2, "Geophysical</p> <p>11 Investigation." All right. And I will</p> <p>12 have a similar series of questions for</p> <p>13 each of the next sections, just so you</p> <p>14 know kind of what the progression will</p> <p>15 be. But as to the geophysical</p> <p>16 investigation, you've related information</p> <p>17 here, and the question is, is this the</p> <p>18 entire extent of the geophysical</p> <p>19 investigation on which your opinions and</p> <p>20 conclusions are based?</p> <p>21 A. From the perspective at the time</p> <p>22 I wrote this report, the answer to your</p> <p>23 question is yes.</p>
<p style="text-align: right;">Page 146</p> <p>1 say -- and if it's not, please let me</p> <p>2 know. Would it be fair to say that the</p> <p>3 elements that are reflected in this</p> <p>4 section are the ones that are most</p> <p>5 significant for the conclusions and</p> <p>6 opinions that you've put forth in your</p> <p>7 report and that any that are not included</p> <p>8 are inconsequential?</p> <p>9 A. I don't think I would use the</p> <p>10 word "inconsequential."</p> <p>11 Q. Okay. What word would you use?</p> <p>12 A. But I would agree with the first</p> <p>13 half of your question, that they are the</p> <p>14 ones that are most consequential.</p> <p>15 Q. Okay. How would you modify the</p> <p>16 second part so that it would be accurate</p> <p>17 in representing what you're communicating</p> <p>18 here, or what the significance of it is?</p> <p>19 A. I would say that it highlights</p> <p>20 the observational evidence that supported</p> <p>21 my conclusions and opinions.</p> <p>22 Q. Okay.</p> <p>23 A. That it does not include some of</p>	<p style="text-align: right;">Page 148</p> <p>1 Q. Okay.</p> <p>2 A. Subsequent to writing this</p> <p>3 report but prior to writing the rebuttal</p> <p>4 and prior, obviously, to this session, I</p> <p>5 had a chance to look at the results of</p> <p>6 the geophysics that was completed on</p> <p>7 behalf of Dr. Dimova.</p> <p>8 Q. Okay.</p> <p>9 A. And there is nothing different</p> <p>10 about those results, but they're also</p> <p>11 geophysical results that I considered, or</p> <p>12 I'm currently considering.</p> <p>13 Q. Okay. Thank you for the</p> <p>14 qualification, and I think you've made a</p> <p>15 good point. Any question that I'm asking</p> <p>16 you about this report would be as of the</p> <p>17 date of the report.</p> <p>18 A. Okay.</p> <p>19 Q. All right. Anything else that</p> <p>20 you need to tell us about 5.2?</p> <p>21 A. No.</p> <p>22 Q. Okay. Let's look on to section</p> <p>23 5.3, the "Mine Waste Sampling and</p>



<p style="text-align: right;">Page 149</p> <p>1 Characterization" section. Is this the  2 entire extent of the mine waste sampling  3 on which your opinions are based?  4 A. Yes. Up until, as you were  5 saying, before the time of writing this  6 report.  7 Q. Okay.  8 A. There is an addendum to the  9 report.  10 Q. Right.  11 A. That is a different but similar  12 suite of analyses that were run on the  13 same samples.  14 Q. Okay. All right. If you'll  15 turn ahead to page 5-5 and look at the  16 section 5.4, "Groundwater Investigation."  17 Is what's set out in section 5.4 on 5-5  18 and 5-6 the entire extent of the  19 groundwater investigation information on  20 which your opinions are based as of  21 October 2017? Whatever the date of your  22 report specifically is.  23 A. Yes. I'll bring your attention</p>	<p style="text-align: right;">Page 151</p> <p>1 report for purposes of your analysis and  2 opinions because you're in agreement with  3 it.  4 A. Correct.  5 Q. Okay. All right. If you'll  6 look at Figure 5-1, please.  7 A. Yes.  8 Q. All right. This is titled "Plan  9 View of Geophysical Investigation and E-M  10 Survey Results." This looks similar to  11 me to images that we've seen in both the  12 Advisian geophysical report and in  13 Brown's report. Is that accurate?  14 A. That's accurate.  15 Q. Okay. And let's look on to  16 Figure 5-2. This is "Results of  17 Land-Based ERT Geophysical Survey." And  18 again, is this the same images that we  19 see in both the Advisian report and  20 Anthony Brown's report?  21 A. Yes.  22 Q. Okay.  23 A. And by images, I mean the images</p>
<p style="text-align: right;">Page 150</p> <p>1 to this statement that I was also  2 informed by the Brown report.  3 Q. Okay. Certainly. Okay. All  4 right. Anything else?  5 A. No.  6 Q. Okay. All right. And now  7 section 5.5, which covers part of page  8 5-6 through page 5-8, we have a section  9 on surface water investigation. And  10 similar to the prior questions, does this  11 relate the entire extent of the surface  12 water investigation on which your  13 opinions are based as of the date you  14 wrote this report in October of 2017?  15 A. Yes. With that same  16 qualification regarding the Brown report.  17 Q. Brown report, okay. And in both  18 of the instances, in the preceding  19 section on groundwater investigation and  20 in the section on surface water  21 investigation, as I understand the  22 statements where you're referencing the  23 Brown report, you were adopting his</p>	<p style="text-align: right;">Page 152</p> <p>1 of the actual ERT results.  2 Q. Certainly the figures. What I'm  3 suggesting and I understand you to be  4 agreeing with is that the images in the  5 figures are the same.  6 And the same with Figure 5-3,  7 would that be true, the results of the  8 river-based ERT physical survey?  9 A. That's correct.  10 Q. Okay. We've already talked  11 about Figure 5-4.  12 Look for me, if you will, at  13 page 6.2. This is within your section of  14 6.1 on "Mine Waste Characteristics." And  15 I'm looking at the top of page 6-2, and  16 I'm specifically looking at the first  17 sentence that reads in its beginning,  18 "These results are consistent with the  19 assessment of the GOB Pile that was  20 completed by ABC." And you have a  21 citation to a document produced by  22 Drummond, it's dated in 1985. Right?  23 A. Correct</p>

<p style="text-align: right;">Page 153</p> <p>1 Q. Do you know whether the results  2 are also consistent with the conditions  3 that existed with regard to the GOB pile  4 at the time of the bond release in 1993?  5 A. No. I'm not aware of any  6 testing of the GOB pile that was done in  7 1993.  8 Q. Okay. All right. If you'll  9 look with me on page 6-3, which is at the  10 end of your section on "Groundwater  11 Conditions," 6.2, you make reference to a  12 "mass of contamination released to the  13 Locust Fork" in the last paragraph. Do  14 you see that?  15 A. I think you might have to direct  16 me there again.  17 Q. Sure.  18 A. Because I don't see the words.  19 Q. Yeah. It's about midpage, the  20 paragraph immediately preceding --  21 A. Okay.  22 Q. -- 6.3.  23 A. I got you now. "When combined</p>	<p style="text-align: right;">Page 155</p> <p>1 A. Yeah, I think I understand the  2 question. I think the answer is yes.  3 Putting it in a different way --  4 Q. Okay.  5 A. -- it's the product of the  6 volume of water that's being transmitted.  7 Q. Okay.  8 A. And the concentration of the  9 contamination in that water.  10 Q. Okay.  11 A. By multiplying those two  12 together, you would determine the mass of  13 a contamination.  14 Q. Okay. Good. Thank you. Now,  15 if you will, walk me through that  16 calculation.  17 A. The "calculation" being Darcy's  18 law?  19 Q. Being the calculation that  20 results in the mass of contamination.  21 A. So it's a simple calculation.  22 Q. Okay.  23 A. I calculated the groundwater</p>
<p style="text-align: right;">Page 154</p> <p>1 with the contamination data"?  2 Q. Right. "Provides guidance as to  3 the mass of contamination released to the  4 Locust Fork." You see that?  5 A. Yes.  6 Q. What is the "mass of  7 contamination" that is released to the  8 Locust Fork?  9 A. The "mass of contamination"  10 would be the outcome of multiplying the  11 volume of water times the concentration  12 of contamination in that water.  13 Q. Okay.  14 A. So that's -- the mass is a unit  15 of mass measure, grams, milligrams,  16 kilograms, that sort of thing.  17 Q. Okay. And is that the result of  18 the application of Darcy's Law and the  19 elements that precede the paragraph we're  20 looking at and the calculation that is  21 reflected in section 6.2 of your report?  22 That wasn't a very artful question, but  23 you may understand the question</p>	<p style="text-align: right;">Page 156</p> <p>1 flow rate to be estimated.  2 Q. Okay.  3 A. "Estimate" is probably better  4 than "calculated."  5 Q. Okay. And that's --  6 A. At 50,000 gallons per day.  7 Q. I'm sorry. And the flow rate  8 would be the Q? Flow rate is indicated  9 by Q?  10 A. Correct.  11 Q. Okay. All right.  12 A. And estimated that to be 50,000  13 gallons per day.  14 Q. Okay.  15 A. If one were to look at the  16 concentrations in the previous section of  17 the report that apply to the groundwater  18 to, say, arsenic, you would multiply that  19 concentration of arsenic times 50,000  20 gallons per day, and you would be able to  21 calculate the number of grams of arsenic  22 that moved to the river.  23 Q. Okay</p>

<p style="text-align: right;">Page 157</p> <p>1 A. The point that I'm making here,  2 though, is not a mathematical exercise.  3 It is a point that these volumes and  4 concentrations in masses are high enough  5 that in my opinion the restoration plan  6 needs to account for the groundwater and  7 the contamination in that groundwater.  8 Q. Okay. All right. What evidence  9 do you have that the mass of  10 contamination that you're discussing is  11 actually being released to the Locust  12 Fork?  13 A. Well, there's no other place for  14 that groundwater to go. It's going to  15 flow with the gradient and with the  16 topography in the same manner the surface  17 water does into the Locust Fork.  18 Q. Okay. Let me back up. All  19 right. Let me start at the top of 6.2,  20 and that might have been a better way to  21 do it than beginning at the end.  22 All right. You say, "The  23 results for the groundwater investigation</p>	<p style="text-align: right;">Page 159</p> <p>1 A. Correct.  2 Q. All right. And from that point,  3 what is the "observed particle  4 distribution of the mine waste"? What  5 does that have reference to?  6 A. So when I sampled the mine waste  7 that's been eroded from the GOB pile and  8 deposited where the, you know, Tributary  9 1, just about where the Tributary 1 flows  10 into the Locust Fork, where the  11 sedimentation basins used to be, I  12 observed that they're sandy, gravelly,  13 grain-sized distribution. Which is going  14 to be permeable. Gravelly, sandy  15 materials are permeable. And the  16 estimate of hydraulic conductivity was  17 provided by aquilogic.  18 Q. Okay. So in this particular  19 introductory clause, the word "observed"  20 means you saw it with your eyes.  21 A. Correct.  22 Q. And you observed that it was  23 sandy, gravelly material. And it is</p>
<p style="text-align: right;">Page 158</p> <p>1 indicate that the groundwater" is  2 contaminated underlying the sediment  3 basins and that that's evidenced by low  4 pH -- right? -- TDS that's elevated, and  5 elevated metals; correct?  6 A. Correct.  7 Q. Okay. Then based on the  8 geophysical surveys, which is the ERT  9 information that you had available in  10 October of 2017, you concluded that "most  11 of the contaminated groundwater is  12 flowing through the eroded mine waste  13 that settled in the sedimentation  14 basins." Right?  15 A. Correct.  16 Q. All right. Then you set out how  17 to estimate the volume of groundwater  18 through the zone by application of  19 Darcy's Law, and you break that down to  20 its elements, flow rate, hydraulic,  21 conductivity, the groundwater gradient,  22 and then A being the cross-sectional area  23 of the settled mine waste; right?</p>	<p style="text-align: right;">Page 160</p> <p>1 sandy, gravelly material what constitutes  2 or is the particle distribution?  3 A. Yes.  4 Q. Okay. All right.  5 All right. The hydraulic  6 conductivity is estimated to be about 500  7 gallons per day per square foot. How did  8 you figure that?  9 A. That was obtained from aquilogic  10 because they did the hydrogeological  11 assessment in detail.  12 Q. Okay. All right. The hydraulic  13 gradient is expected to mirror the ground  14 surface, and it averages approximately  15 3.3 percent over the area of the filled  16 lower sedimentation basin.  17 Where did that information come  18 from?  19 A. Topographic maps of the area.  20 Q. Okay. Is that a number that you  21 figured or calculated or measured?  22 A. "Figured" is probably the --  23 Q. Figured? All right. How would</p>

<p style="text-align: right;">Page 161</p> <p>1 you figure that hydraulic gradient from  2 topographic maps?  3 A. It's basically comparing the  4 differences in elevation and distance  5 between the two points along that flow  6 path.  7 Q. Okay.  8 A. And with the basic assumption  9 that the groundwater surface was  10 consistent with the ground surface, which  11 I think over a long distance in that area  12 is a reasonable assumption.  13 Q. Okay. And recognize you're  14 talking to a layman and trying to  15 understand your area of experience.  16 In making that calculation from  17 a topographic map, and I understand the  18 assumption you've articulated, would this  19 be done by looking at the topo from the  20 point at which you wanted to be the high  21 point of your gradient, and it would have  22 a representation that that was a certain  23 number of feet; right? Based on the</p>	<p style="text-align: right;">Page 163</p> <p>1 ERT and you know what length of cable you  2 put down or something of that sort?  3 A. No. It would be something -- it  4 would be a distance that I would select  5 on the map.  6 Q. Okay.  7 A. If you've selected one hundred  8 feet, for example, it makes the math  9 easier because you're dividing by a  10 hundred instead of some other number.  11 Q. Right.  12 A. And then comparing the  13 elevations of those two points on either  14 extreme. And if, for example, the  15 segment was a hundred feet in length,  16 then the difference in elevation would be  17 3.3 feet.  18 Q. Okay.  19 A. To have a 3.3 percent gradient.  20 Q. Sure. And on the topo,  21 obviously, you're not measure often  22 actual hundred feet, you're using the  23 scale of the map itself; right?</p>
<p style="text-align: right;">Page 162</p> <p>1 topo. All right. And then you would go  2 to another area, whatever you discern the  3 point to be, and you would read the topo  4 there, and it would be a low point.  5 Right?  6 A. Correct. And in this case, the  7 length, the segment that I considered,  8 was coincident with the place where we  9 had the ERT cross section from which I  10 get the area.  11 Q. Okay.  12 A. So we're looking at the gradient  13 at the same place that we have that  14 estimate of the area.  15 Q. Okay. And in terms of the  16 distance between the points, and I  17 recognize you may have answered the  18 question, but would it also be possible  19 to -- would you measure based on the  20 scale of the map the distance between the  21 two points and come up with the number?  22 Or is the distance between the two points  23 already a known quantity because of the</p>	<p style="text-align: right;">Page 164</p> <p>1 A. Correct.  2 Q. To represent the hundred feet.  3 So if one inch equalled a hundred feet,  4 you're using one inch?  5 A. Correct. You're using the scale  6 of the map --  7 Q. Right.  8 A. -- that you're working from, for  9 sure.  10 Q. Okay. All right. Then the area  11 of impact, as you said, is interpreted  12 from the ERT survey line.  13 A. Correct.  14 Q. And you come up with an  15 estimated figure there, which in this  16 instance you have 3,600 cubic feet, 300  17 feet wide by 10 feet deep?  18 A. Square feet. Correct.  19 Q. Square feet, I'm sorry. Thank  20 you. And I take it that you took the  21 groundwater flow rate of 50,000 gallons a  22 day from Brown's report at page 45.  23 A. Yes. Hydraulic conductivity,</p>

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1 not a groundwater flow rate. I think  
2 you're pointing to 500 gallons per day  
3 per square foot?  
4 Q. Actually, I'm looking at the  
5 last sentence of the first paragraph.  
6 A. Oh, I'm sorry, I misunderstood.  
7 Q. Yeah, 50,000. Do you see that  
8 last sentence, "The corresponding  
9 groundwater flow"?  
10 A. Yes.  
11 Q. Okay.  
12 A. So that's the product of that  
13 mathematical exercise we just went  
14 through.  
15 Q. Okay.  
16 A. So that number is the result of  
17 that mathematical exercise.  
18 Q. Okay. And the mass -- is the  
19 mass of contamination, is that a daily  
20 release, according to your analysis here?  
21 A. If you were to use the daily  
22 flow rate, you would calculate a daily  
23 mass.

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1 Q. Okay. All right. And as I  
2 understand it, section 6.3 walks through  
3 a similar but not identical analysis  
4 pertaining to surface water as compared  
5 to the one we just looked at for  
6 groundwater.  
7 A. A similar analysis. The  
8 difference with the surface water is that  
9 one needs to make an assumption about  
10 what proportion of the rainfall seeps  
11 into the ground and what proportion  
12 evaporates, what proportion gets absorbed  
13 by plants. All I did is use the  
14 published factor for that.  
15 And then the other difference is  
16 that with the surface water flow  
17 estimations, I did look at storms and  
18 single events as well. Whereas with  
19 groundwater, the flow was more  
20 consistent, so you look at average flows.  
21 Q. Okay. If you will, I'm looking  
22 now at 6.5, your "Assessment" section.  
23 Do you not think that the pine trees on

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1 site are having any effect as far as  
2 reducing erosion?  
3 A. In my view, if they're having an  
4 effect, it's relatively minor.  
5 Q. Okay. And how do you come to  
6 that conclusion?  
7 A. Well, I come to the conclusion  
8 by observing that wherever there are pine  
9 trees and erosion in the same place, the  
10 pine trees don't appear to be retarding  
11 that erosion at all. So, I think there's  
12 a number of photos in the report shows,  
13 for example, pine trees hanging over the  
14 edge of an escarpment very close to the  
15 point where they'll tumble down into the  
16 escarpment. The edge of that escarpment  
17 hasn't been influenced by the presence of  
18 that pine tree at all.  
19 There's other images of the  
20 eroded gullies throughout the uncapped  
21 GOB area, where the nature of that eroded  
22 gully isn't affected at all adjacent to  
23 the pine trees and pine trees have fallen

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1 into the gully as the gully has grown in  
2 size and eroded the sides.  
3 Also, in the area that is not  
4 capped, there's no ground cover, grasses,  
5 shrubs, shallow-rooted vegetation that is  
6 otherwise impeding erosion. So if we  
7 were to look at guidance provided by,  
8 say, the U.S. EPA on landfills and caps  
9 for coal ash and things like that, they  
10 look for that shallow-rooted surface  
11 vegetation because it is resistance to  
12 erosion, and specifically exclude things  
13 like trees because they permeate the cap  
14 and they're not particularly useful at  
15 preventing erosion on their own.  
16 So those are the factors that  
17 led me to conclude that the pine trees  
18 aren't having a significant effect. And  
19 because their needles are acidic, it's  
20 one of their natural attributes, that  
21 acid only compounds the problem of the  
22 surface of the GOB pile in terms of other  
23 vegetation becoming established



<p style="text-align: right;">Page 169</p> <p>1 Q. Okay. Do you know whether the</p> <p>2 areas that you are describing and what</p> <p>3 you just said are predominantly or</p> <p>4 exclusively in what's known as the</p> <p>5 pre-law area?</p> <p>6 A. They're primarily in the pre-law</p> <p>7 area.</p> <p>8 Q. Okay.</p> <p>9 A. But not exclusively. So the</p> <p>10 places where I was able to observe a</p> <p>11 similar situation in the post-law area or</p> <p>12 where the GOB pile was originally capped</p> <p>13 was limited to where the drainage courses</p> <p>14 had actually eroded through the cap.</p> <p>15 Q. Okay. All right. In other</p> <p>16 areas of the site, do you recognize that</p> <p>17 the tree cover, whether it was pine or</p> <p>18 other species, and the undergrowth,</p> <p>19 whether it's simply pine needles or other</p> <p>20 brush, is having an effect that limits or</p> <p>21 precludes erosion?</p> <p>22 A. In the -- in the area that</p> <p>23 wasn't capped, I didn't see a robust</p>	<p style="text-align: right;">Page 171</p> <p>1 A. The rebuttal differs from the</p> <p>2 first report only in the sense that I</p> <p>3 elaborated more on the manage in place.</p> <p>4 Q. Right.</p> <p>5 A. I compared those two options in</p> <p>6 my report, in my assessment that</p> <p>7 supported my report. When I did so, I</p> <p>8 concluded that the amount of work</p> <p>9 associated with managing the materials in</p> <p>10 place, restoring the GOB pile in place,</p> <p>11 grading and capping and doing all of the</p> <p>12 things that I talk about in terms of</p> <p>13 mitigating the contamination involved</p> <p>14 approximately the same level of work and</p> <p>15 therefore approximately the same cost,</p> <p>16 one could reasonably conclude, as</p> <p>17 removing the materials. The material</p> <p>18 volumes are very, very similar.</p> <p>19 The fundamental difference</p> <p>20 between those two options, then, is, how</p> <p>21 well can we expect them to work and what</p> <p>22 is the time frame associated with those</p> <p>23 options. And so the reason why I</p>
<p style="text-align: right;">Page 170</p> <p>1 enough level of ground -- ground</p> <p>2 vegetation that would have a significant</p> <p>3 effect on reducing erosion.</p> <p>4 Q. Okay. All right. If you will,</p> <p>5 let's look at your section 7. And that</p> <p>6 is titled "Restoration Options." Is it</p> <p>7 not the case that you are really only</p> <p>8 presenting one option?</p> <p>9 A. It is not the case.</p> <p>10 Q. Okay.</p> <p>11 A. That I am only presenting one</p> <p>12 option.</p> <p>13 Q. Okay. Will you explain to me</p> <p>14 how you are presenting more than one</p> <p>15 option and what those options are? And I</p> <p>16 recognize we've touched on this before,</p> <p>17 but I want to make sure I understand it</p> <p>18 in the context of this part of your</p> <p>19 report.</p> <p>20 A. So there are two options that</p> <p>21 are described in my first report and in</p> <p>22 the subsequent rebuttal.</p> <p>23 Q. Okay</p>	<p style="text-align: right;">Page 172</p> <p>1 recommended removal as the best option</p> <p>2 and the preferred option, whatever type</p> <p>3 of wording you choose to use, is because</p> <p>4 of its permits and the level of effort</p> <p>5 associated with that is not that much</p> <p>6 higher than managing the materials in</p> <p>7 place. Because to manage the materials</p> <p>8 in place, we need to do a number of</p> <p>9 things that were not included, say, in</p> <p>10 the capping of the post-law area, as it's</p> <p>11 referred to. So there are significant</p> <p>12 quantities of mine waste that are on the</p> <p>13 east side of the ridge that forms the</p> <p>14 west bank of the Locust Fork. It's very</p> <p>15 steep. In my view, there's no practical</p> <p>16 way that we could manage those materials</p> <p>17 in place, they will continue to ravel</p> <p>18 down the slope and erode down into the</p> <p>19 river. So we need to pull all those</p> <p>20 materials back into the place that we</p> <p>21 were ultimately going to restore the</p> <p>22 materials if we did it in place.</p> <p>23 We know the mine waste is very</p>



<p style="text-align: right;">Page 173</p> <p>1 erosive, so we need to remove that  2 material out of Tributary 1 if we're  3 going to be able to prevent the mine  4 waste from eroding and being transported  5 down the Locust Fork in the future.  6 So once you do those two tasks,  7 as well as regrading the slope so that it  8 has -- just like they did back in the day  9 for the post-law area, you're managing  10 and handling a volume of material that's  11 approximately the same. Now you have to  12 bring in clay and you have to bring in  13 topsoil because you don't have those two  14 things inside the GOB pile, which adds to  15 the volumes again. And through that  16 whole process, we need to control the  17 surface water, have sedimentation ponds,  18 intercept the groundwater, treat the  19 groundwater, because it will not be  20 affected by the surface work.  21 Once we add all of those things  22 up, the overall projects, alternatives  23 end up looking very much the same in</p>	<p style="text-align: right;">Page 175</p> <p>1 or Culbertson; right?  2 A. Well, I would hope I didn't get  3 it wrong both times.  4 Q. And I'm not suggesting that you  5 did.  6 A. Well, it's clearly once.  7 Q. On page 4.4 it appears as -- I  8 think I've got that page right --  9 Culbertson and Cuthbertson. I just want  10 to make sure we've got the name.  11 A. I'll have to look that name up  12 and get you the correct one.  13 Q. But it would be --  14 A. One or the other one, I would  15 presume.  16 Q. Okay. In any event, it's an  17 Alabama Geological Survey bulletin that  18 you've designated; right? So it would be  19 essentially publicly funded.  20 A. Correct.  21 Q. Okay. Now, the immediately  22 following reference, Johnson and Halberg,  23 "Acid Mine Drainage Remediation Options,</p>
<p style="text-align: right;">Page 174</p> <p>1 terms of the level of work. The  2 fundamental difference is that  3 restoration by removal is -- happens more  4 rapidly and it's permanent and you don't  5 have an obligation to manage, monitor,  6 and maintain into the future.  7 Q. Okay. Let me get you to look at  8 Section 8 on the references.  9 A. I'm on Section 8.  10 Q. Okay. The third reference is to  11 the ADEM Solid Waste Program. Is that  12 reference to the regulations?  13 A. Correct.  14 Q. Okay. All right. The next  15 reference I want to ask you about is  16 Cuthbertson, William C., 1964. Is  17 Cuthbertson the correct name, or is  18 Culbertson? It appears both ways in your  19 report on one occasion. And I just want  20 to make sure I have it correct.  21 A. I'd have to take that as an  22 undertaking.  23 Q. Okay. It's either Cuthbertson</p>	<p style="text-align: right;">Page 176</p> <p>1 A Review," is cited to the University of  2 Wales School of Business. Is that a  3 document that's available on the  4 Internet?  5 A. I believe it is. I can provide  6 it through Barry.  7 Q. Okay. Thank you. I would  8 appreciate it. Then if you'll look down  9 at reference to William A. Price, 1997,  10 "Reclamation Section, Energy and Minerals  11 Ministry of Employment and Investment,"  12 is that accessible on the Internet?  13 A. Yes, it is. And I can also  14 provide it through.  15 Q. Okay. All right. I'm looking  16 now in section 9. The P. Eng.  17 designation that accompanies your  18 signature, is that for professional  19 engineer?  20 A. Yes, it is.  21 Q. Okay. Are you registered in  22 Canada?  23 A. Yes. In Alberta and in British</p>

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1 Columbia.  
2 Q. Okay. Are you registered in the  
3 United States?  
4 A. No, I'm not.  
5 Q. Okay.  
6 A. As a point of clarification, one  
7 of the obligations I have as being a  
8 member of APEGA, which is the Alberta  
9 branch, is whenever I write a report  
10 that's destined to be received outside  
11 Alberta, I am still required to do -- to  
12 make that designation.  
13 Q. I understand. And I think  
14 that's true of most professional  
15 engineers in the U.S. Do you know if  
16 there is -- let me start my question  
17 over.  
18 To your understanding, is the  
19 Canadian professional designation and  
20 what is required to attain that similar  
21 to what is required to get the P.E.  
22 designation in the United States? Or do  
23 you know? You may not have compared.

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1 A. I understand it to be similar in  
2 most jurisdictions in Canada and the  
3 United States, and they all have their  
4 different little spins on the same ball  
5 --  
6 Q. Okay.  
7 A. -- but they're all very similar.  
8 Q. All right. Are you required to  
9 maintain continuing education for your  
10 designation?  
11 A. Yes.  
12 Q. Okay. And what is the  
13 continuing education requirement that  
14 you're required to meet?  
15 A. The continuing education -- for  
16 clarification, I don't think they call it  
17 that.  
18 Q. Okay.  
19 A. But I think they call it  
20 professional development.  
21 Q. All right.  
22 A. Or something, words to that  
23 effect But we need to log and report on

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1 an annual basis the number of hours we  
2 spend doing things outside of the daily  
3 ritual that would advance or maintain our  
4 technical credibility and knowledge and  
5 current understanding of the current  
6 state of practice.  
7 Q. Okay. And most professionals in  
8 the U.S., including lawyers and doctors  
9 and engineers and, as I understand it,  
10 geologists and numerous others, have to  
11 get, whether it's called continuing  
12 education or professional education  
13 units. There are certain organizations  
14 that obtain ratification to provide these  
15 credits and charge money and put on  
16 programs. Is there something similar  
17 like that in Canada that you're required  
18 to attend, or is there some other  
19 mechanism by which you maintain your  
20 currency of your practice?  
21 A. The currency from the  
22 perspective of maintaining your practice  
23 is one of self-reporting.

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1 Q. Okay.  
2 A. Of time and effort doing the  
3 things that I mentioned before.  
4 Q. Okay.  
5 A. And at the organization level --  
6 so that's at the personal level. And at  
7 the organization level, there is annual  
8 check and balance referred to as a  
9 professional practices management plan  
10 that Burgess keeps current and updates  
11 and submits as requested.  
12 Q. Okay.  
13 A. Those are the two fundamental  
14 pillars.  
15 Q. So, do you have organizations  
16 that charge you enormous amounts of money  
17 to educate you so you can maintain your  
18 license, as we do?  
19 A. No. No.  
20 Q. You're quite lucky.  
21 All right. Let me get you to  
22 look at the next exhibit, which I believe  
23 is Exhibit 4 Okay If you'll take a

<p style="text-align: right;">Page 181</p> <p>1 minute to look at Exhibit 4 and satisfy  2 yourself that it's a complete copy of the  3 document and then please tell us what it  4 is.  5 (Defendant's Exhibit 4 was marked for  6 identification and is attached.)  7 (Witness reviews document.)  8 A. So it appears to be complete.  9 Q. Okay.  10 A. We did a number of analyses on  11 the mine waste samples that we collected  12 on that August 2017 program. And we had  13 those samples analyzed here in Alabama.  14 What those labs weren't able to do for us  15 was called acid base accounting. Now,  16 it's fair to say that the analyses that  17 they did in Alabama that are included in  18 the report we just talked about got I  19 would say 95 percent of the way there, a  20 great deal of the way there in terms of  21 quantifying the acid-generating  22 substances, the acidity, and the alkaline  23 substances in the samples. But the</p>	<p style="text-align: right;">Page 183</p> <p>1 would say.  2 Q. Okay.  3 A. That the samples in question  4 were acid-generating. So they were --  5 they were susceptible to acid rock  6 drainage. That wasn't a new conclusion.  7 That was a conclusion that was arrived at  8 with the previous samples.  9 That the oxidation of the pyrite  10 and sulfide materials in the samples that  11 is the root cause of the acid-generating  12 had primarily been completed. So that  13 process had essentially completed itself.  14 Not entirely, but more than 90 percent.  15 And that the neutralizing capacity of the  16 waste rock had been entirely consumed.  17 Q. Okay.  18 A. So what that means is the  19 alkaline materials had -- that were  20 present had been consumed by the acid and  21 that the only thing that remained is the  22 acidity.  23 Q. All right. This reference on</p>
<p style="text-align: right;">Page 182</p> <p>1 testing method that was used didn't  2 compare apples to apples, so to speak, in  3 terms of the alkaline substances and the  4 acid-generating substances.  5 Q. Okay.  6 A. So I decided to take subsamples  7 of these samples and get the labs to send  8 them to a lab that I was familiar with  9 that did just that, acid-base accounting  10 it's called. And essentially, it looks  11 at all of the acid generating substances,  12 all of the acidity, and all of the  13 alkaline substances in the sample, looks  14 at them in the same way, totals them, and  15 then quantifies how neutralizing or  16 acid-generating a certain substance is.  17 Q. Okay. And what is the lab that  18 you had those sent to?  19 A. Maxxam.  20 Q. Okay. And what did you discern  21 from this acid-base accounting that you  22 got?  23 A. Three fundamental conclusions, I</p>	<p style="text-align: right;">Page 184</p> <p>1 page 3, Lawrence and Marchant, "Acid Rock  2 Drainage Prediction Manual," is that  3 available on the Internet?  4 A. Yes, it is. And I believe it's  5 somewhat of an extension to that document  6 you were talking about by Price.  7 Q. Okay.  8 A. Not the same document, but  9 they're meant to be looked at together.  10 And again, I can provide that through  11 Barry if you wish.  12 Q. Okay. We would appreciate it.  13 Figure 1 on your memorandum, the "Mine  14 Waste Sample Locations," do those  15 correspond to the mine waste sample  16 locations that we saw in your original  17 report?  18 A. Yes, they should.  19 Q. Okay.  20 MR. DAVIS: Okay. Want to take  21 a short break?  22 MR. BROCK: All right.  23 (Break taken )</p>

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1 Q. (By Mr. Davis) Okay. In your  
2 initial report, Mr. Johnson, one of the  
3 things that was identified as a  
4 contaminant was arsenic; right?  
5 A. Correct.  
6 Q. Okay. And some background  
7 concentrations were sampled at a site  
8 sixteen miles away. Do you consider that  
9 to be a reasonable background sample for  
10 soil conditions at the Maxine Mine site?  
11 A. I'd say that the -- for example,  
12 you've raised arsenic. That background  
13 concentration, which I believe is in the  
14 neighborhood of three milligrams per  
15 kilogram, that would be consistent with  
16 what I would have seen in my career with  
17 background soils. And it's also  
18 consistent with the concentration of  
19 arsenic in the sediment sample upstream  
20 that was collected by Dimova. So it's  
21 consistent with my experience in  
22 background samples.  
23 So sixteen miles, I'll grant

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1 you, is a significant difference, and  
2 there could be differences at Maxine.  
3 The concentrations of arsenic  
4 that we measured in our mine waste  
5 samples are, you know, anywhere from one  
6 to two orders of magnitude higher than  
7 those numbers, and they're much higher  
8 than I would expect background samples to  
9 be at Maxine, and they're much higher  
10 than were reported in that background  
11 sample. They're much higher than were  
12 reported in the background sample in the  
13 river, and in my opinion, would be higher  
14 than in naturally occurring soils in the  
15 Maxine area.  
16 Q. Okay. Are you familiar with  
17 maximum contaminant levels, or MCLs?  
18 A. Yes.  
19 Q. Okay. And I'm speaking  
20 specifically of the EPA standard for  
21 drinking water.  
22 A. Yes. I'm familiar with drinking  
23 water standards

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1 Q. What is your understanding of  
2 what an MCL is?  
3 A. In the context of -- in the  
4 context of drinking water, it would be  
5 the threshold above which water would be  
6 considered inappropriate for drinking,  
7 sometimes for aesthetic reasons,  
8 sometimes for health reasons.  
9 Q. Okay. And that's an end-of-tap  
10 treated water standard; right?  
11 A. Well, it would be a drinking  
12 water standard.  
13 Q. It's not a standard that applies  
14 in stream, is it?  
15 A. It's a drinking water standard.  
16 Whether it's applicable to water in a  
17 certain situation, it may or may not.  
18 Q. Are MCLs applicable to judging  
19 the quality of the water in the Locust  
20 Fork?  
21 A. So as I said in my report, the  
22 application of the rules from the  
23 perspective of determining acceptable

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1 concentrations or not was done by  
2 aquilologic. I didn't do that work.  
3 Q. You don't have an opinion on  
4 whether they're appropriate or not?  
5 A. It would appear to me that  
6 aquilologic did its job properly, but I  
7 didn't repeat it. And I didn't do my own  
8 assessment. I was looking at it from the  
9 perspective of restoration of the pile  
10 and the, you know, pollution that I was  
11 meaning to mitigate through that  
12 restoration plan.  
13 So what exists in the Locust  
14 Fork is not really relevant to the  
15 strategy for restoration. You're trying  
16 to stop the contamination at the source.  
17 Q. Okay. Do you understand maximum  
18 contaminant levels to be applicable only  
19 at the tap for customers of a publicly  
20 owned treatment source?  
21 A. I don't know.  
22 Q. Okay.  
23 A. How that is applied in this

<p style="text-align: right;">Page 189</p> <p>1 location.</p> <p>2 Q. Okay.</p> <p>3 A. I would elaborate on that answer</p> <p>4 and say that in my experience in many</p> <p>5 other jurisdictions, drinking water</p> <p>6 standards are applied in situations where</p> <p>7 the water isn't specifically being</p> <p>8 consumed.</p> <p>9 Q. Much like your analysis of the</p> <p>10 acid-base accounting, would you not agree</p> <p>11 that in making valid scientific</p> <p>12 comparisons, one should, figuratively</p> <p>13 speaking, be comparing apples to apples</p> <p>14 and oranges to oranges?</p> <p>15 A. I think I have to agree with</p> <p>16 that.</p> <p>17 Q. That's kind of the point. That</p> <p>18 was kind of the point. Got to start on</p> <p>19 some common ground to be able to move</p> <p>20 anywhere.</p> <p>21 Okay. Do you see -- well, I'll</p> <p>22 leave that alone. I think you've</p> <p>23 answered it.</p>	<p style="text-align: right;">Page 191</p> <p>8</p> <p>1 consumed.</p> <p>2 Q. So you haven't made any use of</p> <p>3 the acid-base accounting other than</p> <p>4 what's reflected in the memo? In terms</p> <p>5 of conclusions you've drawn from it, you</p> <p>6 have stated those in the memo?</p> <p>7 A. Yes.</p> <p>8 Q. Okay. Okay. I'm going to mark</p> <p>9 as Exhibit 5 your rebuttal report. First</p> <p>10 question is, will you look at Exhibit 5,</p> <p>11 determine whether it appears to be</p> <p>12 complete, and then identify the document</p> <p>13 for the record, please.</p> <p>14 (Defendant's Exhibit 5 was marked for</p> <p>15 identification and is attached.)</p> <p>16 A. So the document is my rebuttal</p> <p>17 to comments made on my original report by</p> <p>18 I believe three different parties.</p> <p>19 Q. Okay.</p> <p>20 A. And just flipping through.</p> <p>21 (Witness reviews document.)</p> <p>22 A. I believe it's complete. I'm</p> <p>23 wondering if this belongs in there.</p>
<p style="text-align: right;">Page 190</p> <p>1 With regard to your memorandum</p> <p>2 that we have marked Exhibit 4, does that</p> <p>3 provide evidence, in your view, that the</p> <p>4 Maxine Mine site is causing any water</p> <p>5 quality violation in the Locust Fork?</p> <p>6 A. This addendum, this memo, if I</p> <p>7 get your question --</p> <p>8 Q. Yeah.</p> <p>9 A. -- is solely a report on the</p> <p>10 analysis of the acid-base accounting of</p> <p>11 the --</p> <p>12 Q. Okay.</p> <p>13 A. -- mine waste samples.</p> <p>14 Q. Okay. All right. Did you draw</p> <p>15 any conclusions from that analysis?</p> <p>16 A. The conclusions that I've stated</p> <p>17 before, that the mine waste is</p> <p>18 acid-generating.</p> <p>19 Q. Okay.</p> <p>20 A. The oxidation process is mostly</p> <p>21 but not completely complete. And that</p> <p>22 the buffering capacity of the alkalinity</p> <p>23 of the samples has been entirely</p>	<p style="text-align: right;">Page 192</p> <p>8</p> <p>1 MR. BROCK: Let's see.</p> <p>2 MR. DAVIS: If it doesn't, we</p> <p>3 need to pull it out, and I'm not sure how</p> <p>4 it got there.</p> <p>5 MR. BROCK: Go off the record</p> <p>6 for a second?</p> <p>7 MR. DAVIS: Sure.</p> <p>8 (Discussion held off the record.)</p> <p>9 Q. (By Mr. Davis) Okay. After that</p> <p>10 off-the-record discussion, Mr. Johnson,</p> <p>11 do we now have a complete and correct</p> <p>12 copy of your rebuttal report marked as</p> <p>13 Exhibit 5?</p> <p>14 A. Yes, we do.</p> <p>15 Q. Okay. Very good. If you'll</p> <p>16 look for me on page 2-2, I'm looking at</p> <p>17 Photo 1. All right. Do you see that?</p> <p>18 It's described as "Discharge of Polluted</p> <p>19 Water Into the Locust Fork."</p> <p>20 A. Yes.</p> <p>21 Q. All right. How are we to know</p> <p>22 from this photo that that water is</p> <p>23 polluted?</p>



<p style="text-align: right;">Page 193</p> <p>8</p> <p>1 A. It has the characteristics of  2 acid mine drainage. It has low pH.  3 There were field measurements taken at  4 the time of the site visit. And what  5 you're seeing in that brown color is  6 metals, when they're in solution, as they  7 are in the groundwater and the surface  8 water, at higher concentrations, once  9 they're exposed to oxygen, they begin to  10 oxidize and come out as solution, forming  11 a kind of rusty color, in the case of  12 iron. So you're seeing that iron  13 oxidation in there, which is an indicator  14 of the metals contamination in the water.  15 That -- that water was sampled,  16 so that's another way that that was  17 confirmed. But the last way that I can  18 tell that that water is contaminated is  19 that the vegetation in the ecology is  20 very robust in Alabama wherever there's  21 water. For some reason, where there was  22 this water, there was a complete absence  23 of any vegetation, which means that the</p>	<p style="text-align: right;">Page 195</p> <p>8</p> <p>1 2-8.  2 A. I'm there.  3 Q. Okay. I see how you have  4 labeled the photographs, obviously. What  5 evidence is there of the amount of daily  6 erosion that you can see?  7 A. There's not evidence of daily  8 erosion. The erosion occurs primarily  9 during major runoff events. That would  10 be my reasonable conclusion.  11 Q. Okay.  12 A. So that on days when it was  13 light flows or no flows or no rain, we  14 wouldn't expect to see significant  15 erosion at all, maybe some minor  16 ravelling of waste rock down the steep  17 slopes of the gully in the top picture,  18 4, and the large ravine, I guess, in  19 Photo 5. Could be minor ravelling of  20 materials on those sorts of days, but  21 when you get the heavy rains, then you're  22 susceptible to getting, I think this is  23 when the vast majority of the erosion</p>
<p style="text-align: right;">Page 194</p> <p>8</p> <p>1 water is having an adverse effect and  2 killing any plants that try to grow.  3 Q. Okay. When was the photo taken?  4 A. During the site visit on the  5 first day.  6 Q. Okay. Do you have a record of a  7 water sample or field reading that was  8 taken at this point?  9 A. I'd have to go back through the  10 record and my previous document. It  11 would be reported by the Brown report and  12 by Barry Sulkin's report.  13 Q. Okay.  14 A. So, do we want to go through the  15 process of?  16 Q. No. I just want to make sure I  17 understand where the data that you're  18 relying on in making your assessment is.  19 A. So this is just downgradient of  20 the lower dam. That's where that photo  21 was taken.  22 Q. Okay. All right. Let's look at  23 Photos 4 and 5 And these are on page</p>	<p style="text-align: right;">Page 196</p> <p>8</p> <p>1 takes place.  2 Q. Okay. And just so the record is  3 perfectly clear, have you been on the  4 site when there was such rain?  5 A. No.  6 Q. In making your assessment of the  7 amount of erosion, did you take into  8 consideration natural settling or any  9 kind of basic impacation that would have  10 resulted from gravity?  11 A. From my assessment, the  12 observational assessment that I was  13 speaking to in the morning's discussions,  14 I was looking at the geometry of the  15 ravine that you see in Photo 5, the  16 geometry of the gully that you see one  17 bank of in Photo 4, and a number of other  18 similar feature throughout the GOB pile.  19 So I was looking at the geometry of those  20 spaces that had been eroded, so natural  21 settlement doesn't enter into that.  22 Q. Okay. Given that point and the  23 geometric approach to it, would you agree</p>



<p style="text-align: right;">Page 197</p> <p>8</p> <p>1 with me that what you are talking about  2 is the possibility of erosion as opposed  3 to an analysis of the actuality of  4 erosion?  5 A. I would not agree with that.  6 The --  7 Q. Okay. How do you disagree with  8 the statement then?  9 A. What I would call the  10 observational approach I think is a sound  11 analytical method when you're looking at  12 land forms and erosion such as what we  13 see at the GOB pile. So there is large  14 eroded gullies where the water clearly  15 flows. There's trees tumbling into those  16 gullies, which is clear evidence that  17 that erosion is occurring on an ongoing  18 basis and has occurred in the near term.  19 There is complete accumulation and  20 filling of all of the low points along  21 the -- where the basins used to be.  22 There is evidence of that same mine waste  23 being transported and deposited on the</p>	<p style="text-align: right;">Page 199</p> <p>8</p> <p>1 Q. Okay.  2 A. You know, you can see trees that  3 are where roots are protruding out  4 through the bank that's been eroded.  5 Roots don't grow like that. They are  6 exposed through erosion. So that would  7 have happened in the relatively recent  8 past. You know, there's full-grown trees  9 that still had leaves on them that have  10 tumbled to the bottom. You can conclude  11 that that happened recently. You can't  12 pick it down to a day, but it's certainly  13 very compelling evidence that that  14 erosion continues.  15 Q. Okay. Would you agree that a  16 photograph is a depiction of whatever  17 scene is in the photograph that is  18 specific to the time and place under  19 which it's taken -- that which it's  20 taken?  21 A. I would agree with that. And I  22 would also add to that that in this case  23 it's likely worth a thousand words</p>
<p style="text-align: right;">Page 198</p> <p>8</p> <p>1 bottom of the river.  2 So, you know, that process of  3 looking at all of the evidence is as  4 conclusive as it would be if I was there  5 that day watching the actual event. I  6 can look at a volcano and tell you that  7 it erupted at one point in time. That I  8 didn't actually see it erupt doesn't  9 undermine that conclusion at all, to make  10 an analogy.  11 Q. I understand. All right. You  12 could tell that the volcano erupted, but  13 could you necessarily tell by visual  14 observation or analysis such as you've  15 described when the volcano erupted,  16 assuming that the lava was not still  17 glowing --  18 A. Yeah.  19 Q. -- and moving or something?  20 A. Using far different methods,  21 yes, you can. There are dating methods  22 that are sound. But if you look at Photo  23 No 7</p>	<p style="text-align: right;">Page 200</p> <p>8</p> <p>1 because it would be more time-consuming  2 to try to describe what I'd seen than  3 simply depict it in a photo. So I tried  4 to do both in the report.  5 Q. All right. Now, I'm trying to  6 understand your description of your  7 visual method. I understand, all other  8 things being equal and no differences in  9 surface, that one could logically deduce  10 that a steep, smooth surface with water  11 running down it would move that water --  12 the water would move at a higher velocity  13 than a smooth surface of the same nature  14 with a less steep incline. Right?  15 A. Correct.  16 Q. Okay. What I'm not getting  17 about your method is how it takes into  18 account any variability in conditions  19 such as compaction over time and other  20 variable factors in the landscape as it  21 may change. Does the question make sense  22 to you?  23 A. I think that it does</p>

<p style="text-align: right;">Page 201</p> <p>8</p> <p>1 Q. Okay.</p> <p>2 A. So I tried to answer it before.</p> <p>3 Q. And I tried to understand it</p> <p>4 before.</p> <p>5 A. So the observational approach,</p> <p>6 looking and taking approximate</p> <p>7 measurements of these eroded features, so</p> <p>8 let's use, case in point, the gully</p> <p>9 that's in Photo No. 4.</p> <p>10 Q. Okay.</p> <p>11 A. That gully is approximately this</p> <p>12 long. It's approximately this wide. I</p> <p>13 mean, I'm going from recollection, but I</p> <p>14 think you know what I'm getting at</p> <p>15 (indicating). It's got a certain length,</p> <p>16 it's got a certain width, it's got a</p> <p>17 certain depth. It's clear that from</p> <p>18 looking at the banks on either side, that</p> <p>19 at one point in time the mine waste was</p> <p>20 placed to a relatively even elevation in</p> <p>21 that area and that water has eroded that</p> <p>22 gully.</p> <p>23 So whether or not --</p>	<p style="text-align: right;">Page 203</p> <p>8</p> <p>1 end of the GOB pile."</p> <p>2 What evidence is there that what</p> <p>3 your arrow is pointing to is mine waste</p> <p>4 as opposed to natural geologic</p> <p>5 conditions?</p> <p>6 A. Well, it has the same appearance</p> <p>7 as the mine waste in the GOB pile and</p> <p>8 where it's accumulated in the former</p> <p>9 sedimentation ponds. And you could</p> <p>10 follow visually the path of that material</p> <p>11 going up the hill and originating up in</p> <p>12 the GOB pile in the uplands at the north</p> <p>13 end of the GOB pile. You could see the</p> <p>14 trace, or the pathway that this material</p> <p>15 had taken tumbling down from the GOB pile</p> <p>16 down into the Locust Fork.</p> <p>17 Q. Okay. Are you saying that the</p> <p>18 material in Photo 6, which is, according</p> <p>19 to you, mine waste, is the same as the</p> <p>20 dark material in Photo 7, which is a</p> <p>21 photograph of material in the GOB pile?</p> <p>22 A. I'm saying that it originated</p> <p>23 from the GOB pile.</p>
<p style="text-align: right;">Page 202</p> <p>8</p> <p>1 Q. Hang on just a second for me.</p> <p>2 (Discussion held off the record.)</p> <p>3 Q. (By Mr. Davis) Okay. Did you</p> <p>4 finish your answer? I'm not sure that</p> <p>5 you did.</p> <p>6 A. I didn't finish the answer.</p> <p>7 Q. Okay.</p> <p>8 A. What I was about to say was that</p> <p>9 the estimate that I would have made</p> <p>10 observationally on the site that day</p> <p>11 wouldn't be affected by subsidence of the</p> <p>12 ground surface. It would simply be a</p> <p>13 function of the geometry of that eroded</p> <p>14 feature that I observed.</p> <p>15 Now, if one was to do -- you</p> <p>16 know, that's a factor that would affect</p> <p>17 ultimately the elevation of the ground</p> <p>18 surface. Subsidence clearly does that.</p> <p>19 Q. All right. If you will, look at</p> <p>20 Photo 6. All right. Your box said that</p> <p>21 -- says that "Eroded mine waste has</p> <p>22 accumulated on the right bank of the</p> <p>23 Locust Fork meander adjacent to the north</p>	<p style="text-align: right;">Page 204</p> <p>8</p> <p>1 Q. Okay.</p> <p>2 A. So on balance, it would be</p> <p>3 similar, if not the same.</p> <p>4 Q. Okay. So in Photo 6, what</p> <p>5 everyone calls the tepee is sitting on</p> <p>6 GOB? See the little wooden tepee there?</p> <p>7 A. Yeah, that's right.</p> <p>8 Q. It's sitting on GOB?</p> <p>9 A. It's sitting on eroded and</p> <p>10 deposited GOB.</p> <p>11 Q. Okay. All right. If you will,</p> <p>12 please look at page 2-11. All right. On</p> <p>13 this page, middle of the page, you</p> <p>14 reference a corrected version of Table</p> <p>15 5.3. What needed to be corrected in</p> <p>16 Table 5.3?</p> <p>17 A. That I had mistakenly identified</p> <p>18 selenium as dissolved selenium in the</p> <p>19 analytical parameter.</p> <p>20 Q. Okay.</p> <p>21 A. And reported dissolved</p> <p>22 concentrations. Through the reply</p> <p>23 process, it was identified by one of the</p>

<p style="text-align: right;">Page 205</p> <p>8</p> <p>1 parties that replied to my report that  2 this should be a total concentration.  3 That was true. I corrected the heading,  4 and I corrected the values to reflect  5 total values. The outcome did not  6 change. In fact, the concentrations are  7 higher for total selenium than dissolved  8 selenium, and the locations of the  9 exceedances were the same.  10 Q. All right. On page 2-13, you  11 note another correction with regard to  12 Table 6.2. Will you tell us about that.  13 A. Correct. I had mistakenly  14 inverted the value for the 10 percent  15 exceedance and the 1 percent exceedance  16 that were calculated by Amec Foster  17 Wheeler, I believe, using the model, and  18 I presented the corrected values in the  19 rebuttal report.  20 So the purpose of including  21 these in my original report was -- the  22 purpose was to include the flow  23 velocities, which are extremely high,</p>	<p style="text-align: right;">Page 207</p> <p>8</p> <p>1 where the Tributary 1 confluences with  2 Locust Fork.  3 Q. Okay. And you've designated  4 this photograph as depicting mine waste.  5 Where is the mine waste in the picture?  6 A. You can see the gravelly  7 material with the evidence of rust color,  8 which is that iron oxidizing that's in  9 solution and oxidizing and precipitating  10 out. So I deduced that that's mine waste  11 based on the visual observation,  12 similarity from what I've seen in the GOB  13 pile.  14 Q. How do you know that what we're  15 looking at in Photo 8 is not native soil?  16 A. Native soil did not exhibit the  17 same things. The rust precipitate, the  18 granular, rocky, angular texture of the  19 material, and the vegetation stress or  20 the absence of vegetation where it is.  21 The banks of that river are muddy and  22 covered with vegetation. Where you have  23 significant accumulations of mine waste,</p>
<p style="text-align: right;">Page 206</p> <p>8</p> <p>1 that whatever we did in the -- for  2 restoration would have to account for  3 these flow velocities, flow rates. So  4 there's a 20 percent chance of exceedance  5 of 344 cubic feet per second in a given  6 year. And that's an extremely high flow  7 rate. And it explains why we're seeing  8 extremely high rates of erosion.  9 Q. Okay.  10 A. And whatever plan that we might  11 devise to restore the GOB pile in place  12 would need to be able to protect it  13 against those very extreme flows.  14 Q. Okay. Look for me if you will  15 at Photo 8.  16 A. Page?  17 Q. 2-16. It's labeled as "Mine  18 Waste from East Ridge in Locust Fork."  19 Can you -- everybody knows where the  20 tepee is, so that one is easy. Can you  21 tell us what location this is?  22 A. It is approximately halfway  23 between where the tepee was -- is and</p>	<p style="text-align: right;">Page 208</p> <p>8</p> <p>1 vegetation is absent, it's granular, and  2 it has that rust color.  3 Q. Okay. Now, you've previously  4 defined mine waste as geologic  5 overburden; right?  6 A. Yes.  7 Q. Okay. And that overburden, by  8 definition, is rock, soil, in some  9 instances coal, that's dug up from the  10 site, a specific piece of property;  11 right?  12 A. Correct.  13 Q. So what's dug up on the Maxine  14 site and appears as GOB, although it  15 didn't come from -- it came from an  16 underground mine immediately adjacent to  17 the site that we're -- that's involved in  18 this case is what underlies the Maxine  19 Mine property, isn't it?  20 A. That geologic strata?  21 Q. Yeah.  22 A. In a competent form, yes.  23 Q. If you dig a hole in a given</p>

Page 209	Page 211
<p>8</p> <p>1 piece of ground and you take the dirt,  2 rock, and whatever's under there out of  3 it and put it in a pile, that's the  4 native rock, isn't it? Unless you  5 imported something in from somewhere  6 else.  7 A. Correct.  8 Q. Okay.  9 A. The difference lies, is once you  10 excavate it out of a situation where it's  11 compact, it's anaerobic, and there's  12 very, very little water running through  13 it, there's no opportunity for  14 significant acidification to occur. When  15 you remove that material, you put it on  16 the surface, you bring the metals to the  17 surface, it initiates that acidification  18 process. So that's the difference from  19 the environmental perspective.  20 Q. Okay. Would you agree that  21 rivers can erode soil and even rock?  22 A. Very gradually, yes.  23 Q. Okay. Would you agree that</p>	<p>8</p> <p>1 "The text contained herein presents  2 documentation of the investigations and  3 assessment of the GOB Pile associated  4 with the former Maxine Mine."  5 And my question here is simply,  6 are there any investigations and  7 assessment that are reflected in your  8 rebuttal report, meaning underlying data,  9 sampling, new visual observations, that  10 were not also included in your memorandum  11 of November 2017 and your original report  12 of October 2017?  13 A. The only difference was that I  14 had an opportunity in that period to  15 review the Dimova --  16 Q. Dimova deposition, okay.  17 A. And obviously had the benefit of  18 the comments from Amec Foster Wheeler and  19 PELA and CH2M.  20 Q. All right. And look at your  21 "References" section for me. The fourth  22 reference down from the B.C. Ministry of  23 Mines, 1998, is that a regulatory</p>
Page 210	Page 212
<p>8</p> <p>1 impoundments of rivers by their very  2 nature can change the course of rivers?  3 A. You're saying a dam?  4 Q. Dam, spillway, impoundment,  5 however you want to call it. Yes.  6 A. I don't know if it would change  7 the course, but it would change the flow  8 velocity.  9 Q. Okay. And it could change the  10 shape of the river upstream of the dam,  11 couldn't it?  12 A. It would change the water depth.  13 The general arrangement of the river  14 would stay the same. The water would be  15 deeper and impounded over a wider area,  16 but its shape would be similar.  17 Q. Impounded over a wider area,  18 though; right?  19 A. Correct.  20 Q. Okay. If you'll look on page  21 5-1 in your "Closure" section, your  22 rebuttal report also contains similar  23 language to your prior report. It says,</p>	<p>8</p> <p>1 guidance report that's available on the  2 Internet?  3 A. I believe so. Like the other  4 ones, I can provide them to Barry if it's  5 not.  6 Q. Okay. That would be  7 appreciated. How about Clements and  8 Kotalic, 2016. Oh, I see. It says:  9 "Published online 6 January 2016.  10 Freshwater Science." Is that a document  11 we could pull off the Internet?  12 A. Yes.  13 Q. Okay. How about, is it Hogsden?  14 Is that how you pronounce it? Hogsden  15 and Harding?  16 A. Again, if we can't, I can  17 provide that to you.  18 Q. Okay. And then finally, the  19 Hopkins document, 2013, Springer Science,  20 is that a --  21 A. Same.  22 Q. Okay.  23 THE WITNESS: Are you keeping</p>

<div style="text-align: right; font-weight: bold;">Page 213</div> <p style="text-align: center;">8</p> <p>1 track of those?</p> <p>2 Q. It will be in the transcript.</p> <p>3 A. Okay.</p> <p>4 MR. DAVIS: Thank you very much.</p> <p>5 MR. BROCK: Yeah, I'm trying.</p> <p>6 Q. Okay. Is it significant to you</p> <p>7 in any way that, for example, with</p> <p>8 reference to the sampling sites SW-1 and</p> <p>9 SW-15 -- are you familiar with the points</p> <p>10 that I'm talking about?</p> <p>11 A. I'll recheck just to be sure.</p> <p>12 Q. Sure.</p> <p>13 A. Okay?</p> <p>14 (Witness reviews document.)</p> <p>15 THE WITNESS: Can they make</p> <p>16 these things any smaller?</p> <p>17 MR. BROCK: Do you need a</p> <p>18 magnifying glass.</p> <p>19 THE WITNESS: One of the things</p> <p>20 I believe I have is a full-size version</p> <p>21 of this.</p> <p>22 Q. Well, how about I just ask you</p> <p>23 this way.</p>	<div style="text-align: right; font-weight: bold;">Page 215</div> <p style="text-align: center;">8</p> <p>1 it. And the quality of water in the</p> <p>2 Locust Fork is clearly not relevant to</p> <p>3 that. But it does provide relevant</p> <p>4 information on the background, the</p> <p>5 natural water quality of the Locust Fork,</p> <p>6 and, you know, would be evidence that</p> <p>7 there's, you know, the volume of water</p> <p>8 entering the Locust Fork is very small</p> <p>9 relative to the volume of water in it.</p> <p>10 So those are the two areas that I would</p> <p>11 say are significant.</p> <p>12 Q. Okay. And given that, do you</p> <p>13 not think that a demonstrable lack of</p> <p>14 impact on the Locust Fork River</p> <p>15 recommends against a project of the scope</p> <p>16 that you are proposing?</p> <p>17 MR. BROCK: Object to the form.</p> <p>18 A. The answer to your question, in</p> <p>19 my view, is no. The concentrations of</p> <p>20 the metals are very high in relation to</p> <p>21 what I'm used to seeing in properly</p> <p>22 managed waste rock facilities, waste rock</p> <p>23 dumps, if you will, from mines. pH is</p>
<div style="text-align: right; font-weight: bold;">Page 214</div> <p style="text-align: center;">8</p> <p>1 THE WITNESS: I believe it's</p> <p>2 down there; right?</p> <p>3 MR. BROCK: Yes.</p> <p>4 Q. Are you aware that the sampling</p> <p>5 sites upstream and downstream of the</p> <p>6 Maxine Mine -- and when I say sampling</p> <p>7 sites, I mean in the Locust Fork River.</p> <p>8 A. Yes.</p> <p>9 Q. Of the Black Warrior River. Are</p> <p>10 you aware that those sampling sites had</p> <p>11 very similar results as to pH, total and</p> <p>12 dissolved metals, and some other</p> <p>13 parameters?</p> <p>14 A. Yes, I am.</p> <p>15 Q. Okay. Is the fact that there</p> <p>16 are such similarities upstream and</p> <p>17 downstream of the mine site of any</p> <p>18 significance to you?</p> <p>19 A. I don't think that those two</p> <p>20 results inform the restoration plan. As</p> <p>21 I've mentioned in my report, the</p> <p>22 restoration plan is focused on trying to</p> <p>23 keep the pollution in its place or remove</p>	<div style="text-align: right; font-weight: bold;">Page 216</div> <p style="text-align: center;">8</p> <p>1 extremely low. The erosion and the rate</p> <p>2 of erosion is larger than I've ever seen</p> <p>3 coming from any of the mines that I've</p> <p>4 worked on. So, you know, that, that</p> <p>5 evidence, in my opinion, is -- that</p> <p>6 situation, in my opinion, requires action</p> <p>7 to stop the pollution from going to</p> <p>8 Tributary 1 and the Locust Fork.</p> <p>9 Q. What is the effect if it's not</p> <p>10 stopped?</p> <p>11 A. That it will continue.</p> <p>12 Q. I understand that. I get that.</p> <p>13 A. Well, with the rate of erosion,</p> <p>14 the rate of, you know, heavy metals</p> <p>15 migration into the Tributary 1 and into</p> <p>16 the places in the Locust Fork where it</p> <p>17 discharges are going to continue to be at</p> <p>18 this level. And I think the rate of</p> <p>19 erosion will continue until all of the</p> <p>20 mine waste has been eroded into the</p> <p>21 river. I don't think there's anything to</p> <p>22 stop it. Because the erosion is eating</p> <p>23 from the toe up to the top, and it will</p>



<p style="text-align: right;">Page 217</p> <p>8</p> <p>1 continue.</p> <p>2 Q. Right. And the question I'm</p> <p>3 asking you is, what if that happens?</p> <p>4 What is the end result?</p> <p>5 A. The end result would be</p> <p>6 Tributary 1 would be a mass of mine</p> <p>7 waste. The banks of the Locust Fork and</p> <p>8 the base of the Locust Fork where the</p> <p>9 water discharges will be covered in mine</p> <p>10 waste.</p> <p>11 Q. Okay. What happens to the</p> <p>12 Locust Fork? Anything?</p> <p>13 A. Well, those things. Those</p> <p>14 things happen to it.</p> <p>15 Q. Okay. Would you like to take a</p> <p>16 short break?</p> <p>17 A. I'm happy to power through if</p> <p>18 you're happy to power through.</p> <p>19 Q. Okay. That will be fine.</p> <p>20 I didn't have a chance to check</p> <p>21 myself, but I will ask you, does Burgess</p> <p>22 Environmental have a website?</p> <p>23 A. Yes.</p>	<p style="text-align: right;">Page 219</p> <p>8</p> <p>1 given year.</p> <p>2 Q. Certainly. And then, I take</p> <p>3 it -- I'll just ask you. Is it a fair</p> <p>4 assumption, then, that the remainder of</p> <p>5 your income comes from the other areas of</p> <p>6 your work that are reflected on your CV?</p> <p>7 A. Correct.</p> <p>8 Q. Okay. Does Burgess</p> <p>9 Environmental have any staff that work in</p> <p>10 addition to you?</p> <p>11 A. Not on a full-time basis.</p> <p>12 Q. Okay.</p> <p>13 A. I do from time to time need to</p> <p>14 basically contract out services like</p> <p>15 drafting.</p> <p>16 Q. Okay.</p> <p>17 A. Sometimes a helper of some sort.</p> <p>18 Q. Okay.</p> <p>19 A. Sometimes clerical assistance.</p> <p>20 Q. Okay. And you would contract</p> <p>21 that out, too?</p> <p>22 A. Yes.</p> <p>23 Q. Okay. Kind of a lean operation;</p>
<p style="text-align: right;">Page 218</p> <p>8</p> <p>1 Q. On that website do you advertise</p> <p>2 or promote your services as an expert</p> <p>3 witness?</p> <p>4 A. Yes.</p> <p>5 Q. Okay. How do you do that?</p> <p>6 A. I think there's a page of the</p> <p>7 website that provides a brief summary of</p> <p>8 the fact that I do that.</p> <p>9 Q. Okay.</p> <p>10 A. And have done that in the past.</p> <p>11 Q. Okay.</p> <p>12 A. And I think it's mixed in with</p> <p>13 my services in the regulatory area.</p> <p>14 Q. Okay. Services provided?</p> <p>15 A. Type of thing, yeah.</p> <p>16 Q. Okay. I don't want a number.</p> <p>17 I'm looking for a percentage. How much</p> <p>18 of your annual income comes from</p> <p>19 providing services as an expert witness?</p> <p>20 A. In one way, shape, or form,</p> <p>21 probably about 25 percent.</p> <p>22 Q. Okay.</p> <p>23 A. It could ebb and flow in any</p>	<p style="text-align: right;">Page 220</p> <p>8</p> <p>1 right? There's nothing wrong with that.</p> <p>2 We've already talked about</p> <p>3 continuing education.</p> <p>4 Do you have any litigation</p> <p>5 experience as either a plaintiff or a</p> <p>6 defendant?</p> <p>7 A. No.</p> <p>8 Q. Have you sued or been sued?</p> <p>9 A. No.</p> <p>10 Q. Congratulations. What did you</p> <p>11 do in preparation for your testimony here</p> <p>12 today?</p> <p>13 A. I reviewed my reports.</p> <p>14 Q. Okay.</p> <p>15 A. I reviewed the reports -- the</p> <p>16 rebuttal report and the original report</p> <p>17 from Anthony Brown. And I spent the day</p> <p>18 yesterday discussing the project with</p> <p>19 SELC.</p> <p>20 Q. Did you talk the Barry Sulkin</p> <p>21 about his testimony?</p> <p>22 A. No.</p> <p>23 Q. How about Anthony Brown?</p>

<div style="text-align: right; font-weight: bold;">Page 221</div> <p style="text-align: center;">8</p> <p>1 A. Very briefly.</p> <p>2 Q. What did you talk about?</p> <p>3 A. He was on his way to the</p> <p>4 airport. We got together for a beer. So</p> <p>5 maybe 20 percent of the discussion was</p> <p>6 about maybe even yourself.</p> <p>7 Q. Okay. Tell me what was said.</p> <p>8 A. He said you tend to rock in your</p> <p>9 chair.</p> <p>10 Q. Yeah, I do. Admitted.</p> <p>11 A. So the nature of the questions</p> <p>12 you were asking.</p> <p>13 Q. Okay. All right. Anything else</p> <p>14 that you care to share with us?</p> <p>15 A. No.</p> <p>16 Q. You had your chance. Okay. Did</p> <p>17 you talk to -- I take it, since you read</p> <p>18 Dr. Dimova's report and deposition, did</p> <p>19 you talk to Dr. Dimova at all?</p> <p>20 A. Not at all.</p> <p>21 Q. How about Dr. Huryn?</p> <p>22 A. Not at all.</p> <p>23 Q. Okay. Can you tell me if</p>	<div style="text-align: right; font-weight: bold;">Page 223</div> <p style="text-align: center;">8</p> <p>1 A. Any assumptions that -- when you</p> <p>2 say "underlie," meaning support? Or</p> <p>3 undermine?</p> <p>4 Q. Well, I'm assuming --</p> <p>5 A. I'm just not used to that term</p> <p>6 being used. Sorry.</p> <p>7 Q. I am assuming that you would</p> <p>8 only have used assumptions that supported</p> <p>9 your conclusions. And I guess I'm asking</p> <p>10 you, are there assumptions that are</p> <p>11 underlying, supporting your opinions that</p> <p>12 you can identify?</p> <p>13 A. The reasoning and the evidence</p> <p>14 and the rationale for my opinions are all</p> <p>15 expressed in my reports. There's not</p> <p>16 other assumptions that I have of any</p> <p>17 consequence.</p> <p>18 Q. All right. And if there are any</p> <p>19 assumptions, those would be either things</p> <p>20 that could be readily identified or</p> <p>21 inferred from how you've written your</p> <p>22 report --</p> <p>23 A. Yeah.</p>
<div style="text-align: right; font-weight: bold;">Page 222</div> <p style="text-align: center;">8</p> <p>1 there's any information or data that</p> <p>2 might change your opinion about what the</p> <p>3 appropriate approach to the Maxine Mine</p> <p>4 site would be?</p> <p>5 A. I think it's not data per se.</p> <p>6 Q. Okay.</p> <p>7 A. But if a responsible plan for</p> <p>8 managing the materials in place was put</p> <p>9 forward, I think it would be worth</p> <p>10 considering.</p> <p>11 Q. Okay. And in your view, a</p> <p>12 responsible plan for management in place</p> <p>13 would address all of the issues that you</p> <p>14 have said in your reports need to be</p> <p>15 addressed; right?</p> <p>16 A. Not necessarily in the same</p> <p>17 exact way, but in an equally effective</p> <p>18 way, yes.</p> <p>19 Q. Okay. In reaching the</p> <p>20 conclusions and opinions you've offered</p> <p>21 to us, can you identify any assumptions</p> <p>22 that you have made that underlie your</p> <p>23 conclusions and opinions?</p>	<div style="text-align: right; font-weight: bold;">Page 224</div> <p style="text-align: center;">8</p> <p>1 Q. -- and what's stated therein?</p> <p>2 A. Yeah.</p> <p>3 Q. Okay. In preparing your reports</p> <p>4 or doing your analysis, do you use any</p> <p>5 kind of specialized computer software?</p> <p>6 A. No.</p> <p>7 Q. Would you suggest that a risk</p> <p>8 assessment at the Maxine Mine property</p> <p>9 would be necessary as a part of</p> <p>10 formulating any ultimate plan?</p> <p>11 A. By that, do you mean</p> <p>12 toxicological risk assessment?</p> <p>13 Q. I mean any kind of risk</p> <p>14 assessment, so I guess I'm putting it out</p> <p>15 there for you to address as you would</p> <p>16 deem appropriate.</p> <p>17 A. The reason why I ask is the term</p> <p>18 "risk assessment" in the environment</p> <p>19 implies a very specific process of going</p> <p>20 through exposure pathway, toxicity, that</p> <p>21 sort of thing. Is that specifically what</p> <p>22 you're talking about a risk assessment?</p> <p>23 Or are you talking about risks like a</p>

<p style="text-align: right;">Page 225</p> <p>8</p> <p>1 normal person would on the street?</p> <p>2 Q. That's a fair question. Are you</p> <p>3 aware that Alabama requires specific</p> <p>4 steps to be taken in a risk assessment in</p> <p>5 relation to the investigation and</p> <p>6 remediation of various kinds of sites</p> <p>7 that ultimately need remediation?</p> <p>8 A. I'm aware --</p> <p>9 MR. BROCK: Object to the form.</p> <p>10 THE WITNESS: Okay.</p> <p>11 MR. BROCK: Go ahead.</p> <p>12 A. I'm aware of the risk assessment</p> <p>13 process.</p> <p>14 Q. Okay.</p> <p>15 A. And how it dovetails into the</p> <p>16 assessment and remediation of</p> <p>17 contaminated sites.</p> <p>18 Q. Right.</p> <p>19 A. You know, does it have</p> <p>20 application on this site? Should it have</p> <p>21 application on this site? You know, I</p> <p>22 would turn it around and say, in my view,</p> <p>23 the responsible management, care, and</p>	<p style="text-align: right;">Page 227</p> <p>8</p> <p>1 it would. It would require permissions</p> <p>2 in certain areas, but I don't see it</p> <p>3 contravening, if that's the nature of the</p> <p>4 question.</p> <p>5 Q. Okay. Let me ask it another</p> <p>6 way. I think you've answered it. Just</p> <p>7 to make sure that we're communicating.</p> <p>8 It's an assumption of your plan</p> <p>9 that there's no legal impediment to it</p> <p>10 being implemented; right?</p> <p>11 A. I'm not aware of any.</p> <p>12 Q. Okay. All right. Have you</p> <p>13 reached, based on your review of the</p> <p>14 various materials that you've looked at,</p> <p>15 any conclusions or opinions that are</p> <p>16 either -- let me start all over.</p> <p>17 Have we now talked about any</p> <p>18 conclusions or opinions that you've</p> <p>19 formulated about the Maxine Mine site?</p> <p>20 A. Have we?</p> <p>21 Q. Have we talked about all your</p> <p>22 conclusions and opinions about the Maxine</p> <p>23 Mine?</p>
<p style="text-align: right;">Page 226</p> <p>8</p> <p>1 control of the GOB pile is what's</p> <p>2 required. After that is done, then one</p> <p>3 might consider using the principles of</p> <p>4 risk assessment to see what the ultimate</p> <p>5 effects might be to the surrounding</p> <p>6 environment. But it would be predicated</p> <p>7 on the responsible management of the GOB</p> <p>8 pile.</p> <p>9 Q. Okay. Is it an assumption of</p> <p>10 your clear-cutting and excavation plan</p> <p>11 for the property that there is no</p> <p>12 conflict between your plan and any legal</p> <p>13 requirements of the State of Alabama?</p> <p>14 A. Sorry, you're going to have to</p> <p>15 tell me that again.</p> <p>16 MR. DAVIS: Can you read that</p> <p>17 back? I can probably improve it, but.</p> <p>18 (Requested portion read.)</p> <p>19 Q. Did you understand the question,</p> <p>20 or should I try again?</p> <p>21 A. I'll put it this way. I</p> <p>22 wouldn't see the plan contravening any</p> <p>23 acts or rules. I'm not aware of any that</p>	<p style="text-align: right;">Page 228</p> <p>8</p> <p>1 A. Certainly the most relevant</p> <p>2 ones, yes.</p> <p>3 Q. Okay. Are there any other</p> <p>4 conclusions or opinions you have reached</p> <p>5 besides the ones that we have talked</p> <p>6 about today or that are otherwise</p> <p>7 reflected in your two reports and your</p> <p>8 memorandum?</p> <p>9 A. No.</p> <p>10 Q. Okay. Do you have any other</p> <p>11 data-gathering, analysis, or other work</p> <p>12 planned as of today?</p> <p>13 A. We don't have any specific</p> <p>14 plans. I think there was a discussion as</p> <p>15 to whether or not there would be some</p> <p>16 value in collecting additional</p> <p>17 information.</p> <p>18 Q. Okay.</p> <p>19 A. I'll leave that to, you know,</p> <p>20 the group to decide whether that has some</p> <p>21 value or not.</p> <p>22 Q. Okay. Nothing has been</p> <p>23 determined as you sit here today; right?</p>

8

1 A. No.

2 Q. All right. So what we have as  
3 of June 21st, 2018, and in your  
4 deposition here and your reports is  
5 everything Gordon Johnson has to say  
6 about the Maxine Mine property?

7 A. Yes. In a relatively concise  
8 format, yes.

9 Q. Okay. All right. Give me a few  
10 minutes. I think I may be ready to wrap  
11 this up.

12 (Break taken.)

13 MR. DAVIS: I don't have any  
14 more questions.

15

16 END OF DEPOSITION  
17 (3:40 p.m.)  
18  
19  
20  
21  
22  
23

8

1 C E R T I F I C A T E  
2 S T A T E O F A L A B A M A )  
3 C O U N T Y O F J E F F E R S O N )

4 I hereby certify that the above  
5 and foregoing proceeding was taken down  
6 by me by stenographic means, and that the  
7 content herein was produced in transcript  
8 form by computer aid under my  
9 supervision, and that the foregoing  
10 represents, to the best of my ability, a  
11 true and correct transcript of the  
12 proceedings occurring on said date at  
13 said time.

14 I further certify that I am  
15 neither of counsel nor of kin to the  
16 parties to the action; nor am I in  
17 anyway interested in the result of said  
18 case.

19 /s/ Lane C. Butler  
20 LANE C. BUTLER, RPR, CRR, CCR  
21 CCR# 418 -- Expires 9/30/18  
22 Commissioner, State of Alabama  
23 My Commission Expires: 2/11/21

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